

FIELDWORK AT GORDION: 1993-1995

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The primary goal of recent fieldwork at Gordion has been the collection of information bearing on the form, organization, and function of the city after 700 BC. In order to achieve this goal we have focused on the collection of data relevant to a reconstruction of the economy of the settlement during periods of political change. An examination of the modern and ancient landscape are an integral part of the research strategy, providing a context for excavated data. This article includes preliminary reports on: the results of three seasons of excavation and artifact analysis; a study of the geomorphological history of the area surrounding the site; and an ethnoarchaeological study of domestic architecture and subsistence strategies in the village of Yassihöyük.²

STRATIGRAPHIC SEQUENCE, ARCHITECTURE, AND SETTLEMENT PLAN

Mary M. Voigt

1. A Brief History of Excavation at Gordion

The site representing ancient settlement at Gordion can be divided into three distinct topographic zones: the Citadel Mound or Yassihöyük proper (formerly called the "City Mound"); the Lower Town or area between the Citadel Mound and the smaller Küçük Höyük to the south; and the Outer Town or low area of settlement extending north and west from the Citadel Mound. Scattered along the slopes and ridge-tops surrounding Gordion are about 100 burial mounds

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² Other major research projects now in progress are a study of the Paleoethnobotany of Gordion being carried out by Dr. Naomi Miller of the University of Pennsylvania, a study of faunal remains by Mr. Jeremiah Dandoy of the Colonial Williamsburg Foundation, and a regional surface survey of the Gordion region under the direction of Dr. Lisa Kealhofer of the College of William and Mary.

or tumuli; the greatest number of tumuli lie to the east, where a linear distribution suggests that they may have lined an ancient road or ceremonial way (Fig. 1; see also Sams and Voigt 1991:Fig. 3; Voigt 1996).

Any attempt to understand a city requires a major, sustained archaeological program, and research at Gordion began nearly a century ago. Until recently, excavation was restricted to the most obvious parts of the site – Yassihöyük, the Küçük Höyük, and the tumuli. Work began at the turn of the century, when Gustav and August Körte (1904) convincingly argued for the identification of this site as the Gordion of ancient textual sources.³ Fieldwork resumed in 1950 under the direction of Rodney S. Young of the University of Pennsylvania Museum. During 17 seasons of excavation, members of the Gordion Project exposed over two hectares of a fortified palace quarter on the Citadel Mound that was destroyed by fire ca. 700 BC (Fig. 2, "Main Excavation Area").⁴ They also investigated the Küçük Höyük fortification system (see below) and 29 tumuli (Kohler 1995; Young 1981). This phase of research ended with Young's accidental death in 1974; since that time his colleagues and students have continued the analysis of excavated material, initially under the direction of Keith DeVries, and now under G. Kenneth Sams.

Rodney Young's work provided a rich and detailed picture of life in the Phrygian court at the time of Midas (summarized by Sams, 1995). A great deal of information on subsequent periods was also collected, but these data were difficult to interpret due to sometimes hasty excavation of extremely complex stratigraphy (primarily a result of pit digging by successive generations of Gordion residents who viewed their predecessors' buildings as an excellent source of stone for new construction). In 1987 a new program of field research was begun at Gordion, again sponsored by the University of Pennsylvania Museum. G. Kenneth Sams was appointed Project Director, with primary responsibility for conservation and publication of the 1950-73 excavations. Renewed excavation and regional surface survey began under the direction of Mary M. Voigt in 1988. In 1993 T. Cuyler Young, Jr. and a Canadian team began work as part of Voigt's excavation, sponsored by the Royal Ontario Museum.

The initial goals of Voigt's research were: (1) to obtain a detailed stratigraphic sequence with associated floral, faunal and artifactual remains extending from ca. 1500-100 BC; (2) to collect information on periods preceding the Early Phrygian Destruction Level; and (3) to expand our knowledge of changing economic and political organization through a study of the environment and regional settlement patterns.

The first two goals were achieved through a stratigraphic sounding carried out in 1988-89 (Sams and Voigt 1990, 1991; Voigt 1994, 1996). Two trenches were set out on the eastern half of the Citadel Mound, within and adjacent to Young's main excavation area (Fig. 2). The "Upper Trench Sounding" began at the present surface of the Mound and was carried down to the Destruction Level; the "Lower Trench Sounding" was placed within an open courtyard of the Destruction Level and was carried down to Middle/Late Bronze Age deposits. The maximum depth of the combined soundings was 9.7 m. A series of small trenches were also placed in the

³ The identification of Yassihöyük as Gordion is generally accepted despite the absence of any textual evidence from the site itself. For a summary of the argument and relevant sources see Voigt 1996.

⁴ The results of Rodney Young's excavations on the Citadel Mound are available in detailed and heavily illustrated preliminary reports published in the *American Journal of Archaeology* between 1955 and 1968. DeVries report in 1990 is critical for the use of earlier publications.

poorly known western half of the Citadel Mound, within a 50 x 30 m "test trench" cut by Young in 1950 (the South Trench, Fig. 2). These western trenches (Operation 12) produced a sequence from Roman times to ca. 700-650 BC and suggested a significant functional difference between the eastern and western areas of the Citadel Mound.

Information from all three excavation areas was used to define chronological units or phases, each of which has clearly defined stratigraphic boundaries and is characterized by a distinctive set of architectural and artifact types (Henrickson 1994; Voigt 1994, 1996). These phases, numbered from 10 through 1, make up the Yassihöyük Stratigraphic Sequence (YHSS); phases vary significantly in sample size (areas of 1 to 250 sq m) and in estimated duration (Table 1).⁵

The third goal, a delineation of settlement patterns that is essential for any understanding of Gordion as an urban place, was only partially achieved. A 400 sq km area surrounding Gordion was surveyed by William Sumner in 1987 and 1988. Sumner walked, rode a motorbike, and drove across the countryside, looking for any human alteration of the terrain; he recorded a total of 39 sites, ranging in date from the Early Bronze Age to the 1920s AD (Sams and Voigt 1990:Fig. 21). In the area immediately surrounding the Citadel Mound, Sumner recorded scatters of sherds and other artifacts – surface remains documenting the Outer Town. These sherd scatters were left in place until 1992, when Keith Dickey and Andrew Goldman spent 10 days conducting an intensive walking survey of fields that were fallow or recently plowed (Sumner and Dickey 1993). Pottery characteristic of the Iron Age or Phrygian occupation was found in all areas of the Outer Town; imports and a few distinctive local types allowed us to state with some confidence that much of this area was occupied during the sixth to fourth centuries (YHSS Phases 5 and 4 or the Middle and Late Phrygian periods).

⁵ This new terminology has been adopted in order to clearly separate a new chronological sequence based on changes in depositional processes and therefore significant changes in the use of space, from the architecturally-based sequence defined by Young, Edwards, and DeVries. Each numbered phase in the YHSS has also been named using terminology adopted by DeVries (1990) in order to link the new and old sequences, but it should be emphasized that there are significant differences in the assignment of specific excavated strata to named periods, especially for the Middle and Late Phrygian periods. The discrepancy between systems is most acute for the Middle and Late Phrygian periods. DeVries' Middle Phrygian Period begins with the reconstruction of the elite quarter with ashlar buildings and ends with a widespread phenomenon observed during Young's excavations—layers of tile from the roofs of these structures. Ceramic imports placed this "tile fall," which DeVries interpreted as a widespread destruction caused by an earthquake, around 400 BC. Within the 1988-89 Upper Trench Soundings, YHSS phase 5 ends with the final use of the ashlar buildings characteristic of DeVries' Middle Phrygian period, and YHSS 4 marked by the destruction or modification of these structures – a clear stratigraphic break within the 1988-89 sounding. Within strata assigned to YHSS phase 4 or the Late Phrygian phase, the characteristic form of domestic structure is the semi-subterranean "cellar" (Voigt 1994), a building that DeVries placed within his Middle Phrygian period. While the precise date of the YHSS 5-4 transition could not be determined, Attic imports indicated that the construction of a YHSS 4 cellar within the foundations of YHSS 5 Building I:2 had been completed by c 500-475 BC (Sams and Voigt 1991); at least one other cellar associated with Building I:2 was stratigraphically earlier, but contained no material that could provide an absolute date for its construction. Both chronological systems use the abandonment and/or destruction of the Middle Phrygian/ashlar buildings as a means of defining a break between the Middle and Late Phrygian periods, but the absolute date of this break varies by more than 100 years. The change in absolute dating has a profound effect on our picture of settlement pattern, and on the causes invoked to explain this change.

By the end of the 1992 season, most of the material collected in 1988 and 1989 had been recorded and analyzed, yielding a secure, stratigraphically based ceramic sequence, a better understanding of depositional processes on the Citadel Mound, and a preliminary definition of the settlement area for Gordion during the period when the city seemed to have reached its maximum size. Given our overall interest in Gordion as an urban place we decided in 1993 to focus new research on the Middle and Late Phrygian (YHSS 5-4) occupations, which were not well understood and were apparently the periods of Gordion's greatest growth and prosperity. Among the specific historical problems that might be resolved as a result of research on these periods were: (1) the date of the reconstruction of the city after the Early Phrygian Destruction; (2) the nature of Lydian influence and power at Gordion and the relationship of this influence to major construction projects and urban growth; (3) the effect of Persian rule on native Phrygian (or Phrygian/Lydian) material culture; and (4) the nature and extent of long-distance trade in Anatolia under the Persians. We are not yet able to answer most of these questions, but this report presents a description of some of the information that will eventually lead to their resolution.

2. Results of Excavation 1993-1995

Excavation in all three topographic zones of the settlement took place during three seasons of excavation from 1993 to 1995 (Fig. 1). On the Citadel Mound, trenches were placed to the west in an attempt to balance earlier research within the elite quarter to the east. Within the Lower Town, substantial clearances were made in two areas. Since most of the Outer Town is now covered by fields, work in this zone was confined to small, scattered soundings placed in areas with appropriate (pre-Roman) surface remains and with a farmer willing to sell his crop to the Gordion Project. The results of excavation in these areas will be presented by period, facilitating a discussion of settlement pattern.

Before beginning a description of changes in urban form at Gordion, two major changes in the landscape since Roman times that have been documented by geomorphological survey (see Marsh below) must be noted. First, approximately 4 m of alluvium have accumulated above the ancient plain level. Second, there has been a shift in the location of the Sakarya River: the present channel, which cuts through massive stone walls and foundations, is of recent origin; the ancient channel flowed along the eastern side of the city, separating it from outlying residential areas and tumuli (Fig. 1).

1. THE MIDDLE PHRYGIAN PERIOD: YHSS PHASE 5

The Twin Citadel Mounds

The Middle Phrygian/YHSS 5 settlement at Gordion represents a new foundation following the 700 BC destruction. Excavation carried out on the eastern half of the Citadel Mound by Rodney S. Young documented the nature of a reconstructed elite quarter that sealed the ruins of the Early Phrygian/YHSS Phase 6A palace quarter. The Middle Phrygian/YHSS 5 buildings nearly duplicate the plan of the structures buried beneath them (see Voigt 1994:Figs. 25.1, 25.4), but very different construction techniques were employed. During Middle Phrygian/YHSS 5

times the elite quarter consisted of ashlar structures resting on deep rubble foundations, the latter set within a 3 to 5 m deep layer of construction fill which is usually, but not always, sterile clay (for example, see section in Young 1968:Fig. 21, "Persian Clay Layer" and rubble foundations to left; see also Voigt 1994:Pl. 25.6.2-4). This eastern building complex was surrounded by heavy fortification walls and bordered to the west by a low-lying street (DeVries 1990:Figs. 29, 30), but what lay beyond the street was unknown.

The presence of an equivalent layer of construction fill beneath Middle Phrygian/YHSS5 buildings to the west was initially established in 1989 (Operation 12 within the South Trench; Sams and Voigt 1991), and confirmed by work since 1993. Thus we can now reconstruct the center of the Middle Phrygian/YHSS 5 city as consisting of two high mounds, separated by a street. To the north, this street led toward the Outer Town; to the south, the street led into a well-documented fortified enclosure, the Lower Town. The amount of fill heaped up to form the Western Mound is known from a small (1 x 4 m) sounding cut within Operation 12. Here a layer of clay more than 5 meters thick had been laid over Early Phrygian/YHSS 6 deposits. Note that the topmost Early Phrygian surface was located over 5 meters above present plain level and approximately 9 meters above the ancient plain, documenting for the first time a mounded Early Phrygian/YHSS 6 occupation to the west of the elite quarter.

A major question that remains unanswered is the nature of the outer edge of the YHSS 5 Western Mound. Some kind of facing to protect the sides of the artificial mound is essential: the layer of construction fill tends to shear away from vertical faces when dry, as can readily be observed along the edges of the Main excavation area where large sections of both fill and rubble foundations have collapsed within twenty years of their exposure through excavation. On the YHSS 5 Eastern Mound, the sides of the fill were protected in several ways. In the area of the main gate to the south, Rodney Young exposed a stone glacis sloping down from the heavy fortification walls that encircle the elite quarter (Young 1956:Pl. 83-84). On the northwest corner of the Eastern Citadel Mound, a terrace extended out from the fortification wall and this terrace was faced with stone blocks (Young 1968:Pl. 71). To the northeast, the wall was again bordered on the outside by a terrace, which ran down in a gentle slope paved with stone (DeVries 1990:392-393, Fig. 28).

Our only information on the outer edge of the Western Citadel mound comes from Operation 30, a step trench cut in 1994 by T. Cuyler Young, Jr. (Fig. 2).⁶ This sounding provided new stratigraphic evidence for the construction of the YHSS 5 Western Mound, but complicated rather than clarified the question of its outer face. Operation 30 cut through Roman/YHSS 2 to Middle Phrygian/YHSS 5 occupation levels, all of them truncated to the north (Sams and Voigt 1996:Figs. 3-4). A thin stratum of YHSS 5/Middle Phrygian occupation debris lay above 3.5 m of sterile clay fill, and beneath this fill was a layer of rubble tested to a depth of 2 m (i.e. below present plain level) without reaching its base. This stratigraphy is unique, since in all other excavated areas on the Citadel Mound the YHSS 5 fill layer rests on Early Phrygian/YHSS 6 occupation levels rather than rubble. The heavy rubble layer is clearly related to the construction of the Western Mound's outer face, since buildings at ancient plain level are located a few meters

⁶ Operation 30 was excavated in preparation for more extensive clearance of architecture dated to YHSS 4 and 5; it was placed within Young's "Southwest Trench" as a matter of economy, since here the Medieval and later Roman occupation levels had already been removed.

to the north: the remains of massive walls built of ashlar blocks on rubble or cobble foundations (i.e., typologically similar to construction techniques characteristic of YHSS 5) are visible in the bed and banks of the Sakarya immediately to the north of the Southwest Trench.⁷ Piecing together the available information, I would argue that the clay and rubble exposed in Operation 30 were laid down to encase the earlier (YHSS 6) mound, extending the elevated surface available for YHSS 5 buildings. The rubble suggests heavy construction along the edge of the mound in this area, presumably fortification walls or perhaps a roadway leading up from the Outer Town to the YHSS 5 Western Citadel Mound.

The Western Mound of the Middle Phrygian/YHSS 5 period supported substantial structures with stone foundations and mudbrick walls. One building excavated in Operation 12 had a pebble mosaic floor, and the collapse above the floor contained pieces of pink lime plaster that fell from the walls. Based on architecture alone, we had concluded that this area was occupied by relatively well-to-do merchants or minor officials. This interpretation is supported by a deposit from Operation 17 (also sampled in 1950 and 1989) that dates to the very end of YHSS 5. Large quantities of pottery vessels, most of them apparently complete when discarded were thrown into a pit. In addition to local gray pottery, fine ware vessels imported from Lydia and the Aegean were also relatively common (see DeVries below).

The Fortified Lower Town

Our picture of the Middle Phrygian/YHSS 5 city was substantially altered by new excavations within two areas of the Lower Town (Fig. 1, Areas A and B). Excavations by Machteld Mellink in the 1950s showed that the Lower Town was bounded by massive stone and mudbrick walls that extended out from a 2 story mudbrick fortress, the Küçük Höyük (Young 1953, 1957, 1958).⁸ Mellink placed the construction of this fortification system contemporary with the rebuilding of the Citadel Mounds, and its destruction in the third quarter of the sixth century, presumably by a Persian army (see Mellink 1991:652-653).

Excavation since 1993 has confirmed a date within the Middle Phrygian period for buildings inside the fortification walls and provided new evidence on construction techniques, as well as on the use of space in this part of the settlement. Deep soundings in Areas A and B encountered thick layers of fill, indicating that as part of the Middle Phrygian/YHSS 5 construction project an artificial terrace lying well above plain level was created along the inner face of the Lower Town fortification walls. Both monumental structures and ordinary houses were built on top of this terrace.

Monumental architecture was exposed in Lower Town Area A. In Operation 27, we cleared a massive Middle Phrygian/YHSS 5 ashlar wall approximately 2 m wide, resting on

⁷ Two cuts were made along the southern bank of the Sakarya in 1994 (Operation 28, Fig. 1) in an attempt to date these foundations, but no firm conclusions could be drawn based on ceramic evidence. The strata were waterlogged and difficult to dig, and pottery was scarce. We therefore abandoned these trenches without obtaining an adequate sample of ceramic diagnostics.

⁸ The Middle Phrygian/YHSS 5 fortress is located at the northern end of the oval mound called the Küçük Höyük. The "tail" to the south is sterile fill which was initially interpreted as a tumulus or burial mound interring the ruined fort and a dead leader. It is now considered more likely to be a siege mound, but excavation is needed to confirm this hypothesis.

a 4 m wide rubble foundation set in construction fill (Figs. 3-4). As with contemporary buildings on the Citadel Mound, the foundations were not cut into the fill, but instead, both clay and rubble were laid down at the same time.⁹ To the southwest of this wall lay a series of hard-packed surfaces that had been disturbed by a later storage pit. On the opposite (northeast) side of the wall we excavated one corner of a rectilinear structure built with typical YHSS 5 technology. This structure had ashlar walls approximately 1 m wide set on rubble foundations, with thin pieces of wood sometimes laid between rubble and blocks, or between wall slabs. The area to the northeast of the two meter wide wall is at a higher absolute level than the packed surfaces to its southwest, so that the larger, long wall supported the edge of a terrace to the northeast. The best preserved segment of the large wall lies adjacent to the west balk of Operation 27 (Fig. 5) suggests that it extended above the terrace surface, emphatically separating the northeastern building(s) from an open area or street to the southwest.

Middle Phrygian/YHSS 5 domestic architecture has been documented in Lower Town Area B (Operations 24-26, 31), where houses built at ground level were separated by relatively clean exterior surfaces (Fig. 6). Most of one multi-roomed structure lay within the excavated area, though both its eastern and western ends had been cut away by later (YHSS 4) buildings. Two rooms (1-2) were relatively well preserved and provide information on construction techniques. Walls were made by setting out lines of cobbles and small pieces of rubble in shallow foundation trenches. Mudbrick was then laid on these foundations, leaving spaces for doorways. (Bricklines could not be observed in the walls themselves, but fallen bricks collapsed into room 2.) The size of the rooms suggests the use of relatively short timbers for roofbeams, an inference strengthened by the presence of a buttress along the south wall of Room 1, presumably to support a cross beam. Both Rooms 1 and 2 had laid clay floors, and a smooth layer of mud plaster remained *in situ* in the southwest corner of Room 1 which appears to be the primary living space, heated by a small hearth set up against the west wall (Fig. 7). Room 2 had a poorly preserved, uneven floor, and may have been used as a storage area. Wooden doors, documented by stone sockets, closed the doorway in the west wall of each room. The walls of Room 3 had eroded or been robbed down to the foundations (Sams and Voigt 1996:Fig. 14, top of photo), but its packed earth floor suggests that this area may have been an unroofed courtyard. A second line of rooms to the north was poorly preserved as a result of pitting and erosion down to foundation level; since doorways are only visible gaps in the brick walls (sometimes accompanied by door sockets), we are not certain whether the two lines of rooms were interconnected (forming a single house) or separate (forming two houses with a party wall). Room 6 is a second unroofed courtyard, which contained a stone table (Fig. 4).

Lying to the south of this large structure, and linked to it by an angled wall, was a second, slightly earlier building (Fig. 6; Sams and Voigt 1996:Fig. 14, foreground). A stone platform had been built against the connecting wall, resting on a clean, hard-packed surface that lay between the buildings. Most of this southern structure had been destroyed by a YHSS 4 pithouse (Fig.

⁹ In operations 1 and 2 on the Citadel the stratigraphy was especially clear. No sign of a cut was ever found along the outer edges of the rubble foundations; instead, fingers of soil from the fill extend into the edges of the foundation, sometimes nearly surrounding individual rubble pieces. The foundations in Operation 27 were badly robbed, but again, the fill extended between individual pieces of rubble along the foundation edges.

8), but the preserved corner contained a large storage jar set below a plastered floor, presumably used for cereal storage.

The buildings just described represent the latest Middle Phrygian/YHSS 5 occupation in Area B. Lying in mud wall debris that covered the buildings were sherds of an imported Attic vessel ("Haimonian" cup-skyphos) dated 500-475 BC by DeVries, providing a date for the period when the YHSS houses had decayed to a relatively level surface. From a paved surface that dates near but not at the end of the YHSS 5 occupation came a small sherd of a Little Master cup dated ca. 550-525 BC. The burned ruins of the nearby Küçük Höyük fortress also contained Little Master cups, suggesting that the houses were emptied and abandoned at approximately the same time or perhaps slightly after the destruction of the fortress. Beneath the mid-sixth century houses in Area B lay two more building levels. All of the Area B buildings are similar in construction and appear to be domestic. Associated artifacts suggest that at least some of the people living there were craft specialists: a steatite (?) mold for small pieces of jewelry found lying *in situ* on a paved outside surface with a hearth provides direct evidence of manufacturing activities.

The Unfortified (?) Outer Town

Our initial goal in this part of the site was to determine the relationship(s) between surface materials and sub-surface deposits, and to assess the potential of this area for large-scale "horizontal" clearances. We assumed that the deposit was not deeply mounded, and feared that plowing might have disturbed or even destroyed this part of Gordion. In 1993 we placed a 4 x 4 m sounding in a sugarbeet field in the northwestern part of the Outer Town, near the modern railway tracks (Fig. 1; Operation 22). Beneath the plow zone and a layer of featureless soil we found a chamber cut partially into virgin soil and partially into earlier ovens, the latter extending more than 3 m beneath the surface. The room had a smooth floor and walls, and was filled with layers of ash and collapsed superstructure; a passage to one side presumably led to another room, outside of the excavation area. Several complete pots found above the floor provide a tentative date for this structure: based on form and fabric Sams and Henrickson agree that these vessels are typologically intermediate between pottery found in the Early Phrygian Destruction Level/YHSS 6A and pottery in occupation debris associated with Middle Phrygian/YHSS 5 structures on the Citadel Mounds (for example Henrickson 1994:Fig. 10.7-8). Thus in Operation 22 we have for the first time located occupation levels that probably date to the period when the YHSS 5 Twin Citadel Mounds and Lower Town were under construction.

There is no evidence for walls along the edges of the Outer Town as presently mapped. There may, however, have been a low fortified area to the north of the Citadels, mirroring that to the south. Kuş Tepe, a small oval mound along the eastern edge of the Outer Town, appears to be the focus of several lines of walls located in the present bed of the Sakarya (Fig. 34; see Marsh below). Kuş Tepe's form (though not size) and its position on the west bank of the ancient Sakarya parallel the Küçük Höyük, raising the possibility of a similar function.

2. THE LATE PHRYGIAN PERIOD: YHSS PHASE 4

With a change in the political function of the city, there was also a change in the use of space, especially in the central part of the city. Two citadel mounds still dominated the settlement, but the type of buildings constructed on each mound changed. Both Lower and Outer Towns were occupied, and the settlement seems to have been as large or only slightly smaller than in the Middle Phrygian period. Persian influence is seen not only in the local ceramic industry (see Henrickson below) but also in weapons and horse gear (compare headstall ornament Fig. 32h dated to YHSS 4 with 32i, l-m dated to YHSS 5).

The Eastern Citadel Mound

Soon after Gordion had been incorporated into the Achaemenid Empire, many of the ashlar buildings on the Middle Phrygian/YHSS 5 Eastern Citadel Mound were modified or fell out of use and were pillaged for building materials (Voigt 1994:Pl. 25.7.2-4). Public architecture during Late Phrygian/YHSS 4 times was apparently restricted to the area immediately inside the main gate to this part of the settlement (for example, the Painted House; see Mellink 1980), and along the fortification wall to the west of the gate. Operation 39 on the southwestern edge of the Eastern Mound, lies adjacent to one of the public structures, the "Mosaic Building" excavated by Rodney Young (Young 1953). This large structure, with its pebble mosaic floors and decorated tile roof (see Glendinning 1995) is interpreted by some as an administrative building used by the Achaemenids, by others as a temple. Since it lies partially above Building A of the Middle Phrygian/YHSS 5 period, a date for its construction within the Late Phrygian period could be assumed. In Operation 39 we hoped to obtain more precise dates for the construction and use of the Mosaic Building by excavating adjacent exterior surfaces with accumulations of trash and datable ceramics.

What we found was an architectural puzzle: a series of unusual foundation blocks lying on two sides of the northwesternmost room of Young's Mosaic Building (Fig. 9; Sams and Voigt *In press*:Photo 5). Three tall, irregularly shaped blocks had very smooth outer (northwest) faces and irregular inner faces; the fourth, westernmost block (1) had two smooth outer sides, forming a corner that mirrors the western corner of the Mosaic Building room. Large flat slabs extended between the bases of two sets of blocks, at what seems to have been ground level in an open area to the northwest. The tops of the blocks were carved to support semi-engaged columns, with a quarter column on the western or corner block. A small patch of lime-plastered floor was preserved at the level of the top of block 2, at a slightly lower level than the mosaic floor in the adjacent room. This plaster floor extended over the top of the irregular side of the block, leaving the raised column base exposed. We can thus reconstruct a passageway around at least two sides of a mosaic-floored room. The shape of the raised column bases, with narrow rectilinear projections to either side, suggests that half columns faced into a porch that may have had a low wall or balustrade linking the columns, set on the narrow side projections. The date of construction of this porch is still uncertain.

The Western Citadel Mound

Both structures built at ground level and pithouses were constructed in this area during Late Phrygian/YHSS 4 times. The best architectural (and ceramic) sequence for this part of the site at present comes from Operation 17 near the southwest edge of the Western Citadel (Fig. 2). At the beginning of YHSS 4 a house with a carefully plastered floor was built at ground level (Fig. 10; Sams and Voigt *In press*: Photo 3). The walls were built of cobbles set on a layer of flat slabs, many of which had been robbed out. Two large, opposing postholes presumably held wooden supports for the roof; smaller postholes along the southeastern wall are more likely to be related to some kind of interior fittings.

Near the end of YHSS 4 a very different kind of house was constructed in this area: a relatively well-preserved rectangular pithouse with walls constructed of a single layer of stone set in a pit with sloping sides (Fig. 11; Sams and Voigt *In press*: Photo 4); both the interior face of the walls and the floor were carefully plastered. The interior of the house was partitioned by a mudbrick wall. To the south of the partition was a small kitchen with a neatly built hearth in one corner. The second room presumably was used for a variety of activities including eating and sleeping; at the time of its abandonment, the floor in this room was covered with food debris, including an excellent sample of fish bone. On the northwest corner of the mound (Fig. 2, Operation 30) we exposed a small portion of a YHSS 4 structure built at ground level that had evidence of ordinary domestic activities.

The fortified Lower Town

Despite the destruction of the Küçük Höyük fortress, the Lower Town walls seem to have been maintained throughout the Late Phrygian/YHSS 4 period. This inference is based on the absence of any substantial layer of mudbrick collapse above the abandoned Middle Phrygian/YHSS 5 houses. The stratigraphy is especially clear in Lower Town B where research carried out from 1993 to 1995 exposed an area of more than 500 sq m. Here a series of isolated single-roomed YHSS 4 pithouses were cut down into the decayed buildings of YHSS 5. The outside surfaces surrounding the pithouses are clean, again an indication that the massive brick walls to the south were intact.

The best preserved structure in this part of the settlement is the largest as well as the latest, tentatively dated to the fourth century BC. Located within Operation 23 (Figs. 8, 12), this house had cobble foundations set against the side of a pit ca. 1 m deep. There was no trace of collapsed brick within the building, suggesting that the upper part of the walls may have been wood or wattle and daub. Wood was certainly more important in this building's construction than in others dating to this period: the southwest wall had two post-slots preserved, and a line of postholes document the presence of internal wooden roof supports running diagonally (north-south) across the building. The floor was of clean clay, with a stone paved area along the southwestern wall. In the northern half of the building lay a poorly preserved set of pyrotechnic features constructed against a low wall to the west, an oven, and a square clay platform and shallow pit (to the east) (see also Sams and Voigt 1996: Fig. 15). An oven built of mudbrick with an opening to the southeast was set near the center of the room; adjacent to the oven was

a circular bin that contained three lydions (Fig. 30f-g). A black polished bowl with pattern burnishing was found in a small pit just to the south of the oven (Fig. 30f).

A smaller structure to the northeast (in Operation 26) was set in a deeper pit that had cut away the eastern end of the Middle Phrygian/YHSS 5 house (Fig. 5). The walls of this Late Phrygian/YHSS 4 building were formed by lining a rectangular pit ca. 1.10 m deep with stone to a height of about 0.5 m and then capping this foundation with packed mud. The floor was mud plastered, but no trace of a hearth was found. The absence of interior fittings raises the possibility that this small subterranean building was actually a "cellar" or storage area lying beneath a house at ground level; on the other hand, there are no postholes in the floor, and it is hard to see how the narrow packed mud walls would have supported both a wooden floor and a wooden superstructure. Size alone cannot be used to argue that this is not a dwelling since a similar structure in Operation 42 had a hearth (Fig. 13; Sams and Voigt *In press*:Photo 2), as did an analogous building on the Eastern Citadel Mound excavated in 1989 (Operation 2).

In Lower Town Area A, both ordinary pithouses and more substantial buildings were constructed during YHSS 4. Hellenistic stone robbing and Roman burials have badly disturbed underlying occupation levels; nevertheless, fragmentary foundations of a large multi-roomed structure within Operation 27 suggest that this part of the Lower Town continued to be used for military or governmental purposes¹⁰.

The Outer Town

Three sondages placed in fields on the left bank of the Sakarya River uncovered Late Phrygian/YHSS 4 remains (Fig. 1, Operations 32, 33, 43). Operations 32 and 43 lie on a ridge above the alluvial plain, adjacent to the Yassıhöyük-Beylikköprü road. In this area, at least 2 m of archaeological deposit dating from the sixth through fourth centuries BC lie beneath the plow zone. The lowest architectural level in Operation 32 was very well preserved, and consisted of part of a house and associated courtyard (Sams and Voigt 1996:Fig. 17). Operation 33 lies near the northern edge of the Outer Town, across the Sakarya from Kuş Tepe. The deposit was shallow here, with bedrock lying only 1 m beneath the surface. Most of the excavated area lay within a courtyard, producing a sample of domestic debris dated to the Late Phrygian/YHSS 4 period, but little information on architecture.

3. THE HELLENISTIC PERIOD: YHSS PHASE 3A AND 3B

The settlement changed significantly in form after its conquest by Alexander. During early Hellenistic times (YHSS 3B), the Citadel Mound took on its present form: the street between the two central mounds was filled, and houses were built there (DeVries 1990:400-401). The Lower Town was apparently abandoned, and was eventually used as a cemetery during the

¹⁰ A thin layer of clay (mudbrick wash) covers the YHSS 4 houses, separating them from the Late Hellenistic (Galatian) "burials" lying above. This layer presumably marks the abandonment of the Lower Town walls. Their collapse accelerates after the Galatian abandonment, a process documented by the thick layer of wall collapse that accumulated before the use of this area as a Roman cemetery. All of these clay layers slope up to the south, i.e. slope up toward the fortification walls documented by Mellink.

Galatian/YHSS 3A occupation. Surface remains and the contents of pits in one Outer Town sounding (Operation 33) suggest that some parts of this topographic zone continued to be occupied during at least part of the Hellenistic period.

The Citadel Mound

Excavations on the western half of the mound from 1993 to 1995 exposed domestic structures dated to YHSS 3B overlain by monumental and domestic buildings, some of which can be securely placed within the Galatian/YHSS 3A occupation. In Operation 29, we exposed most of a YHSS 3B two-roomed house with foundations built of small stones set in a shallow foundation trench, and capped by mudbrick walls. This structure was overlain by thick layers of trash that contained not only food debris but also abundant evidence of metal working including crucibles and furnace linings. Cut into the trash (as well as the house below) was a monumental stone wall running northwest-southeast; the wall was faced with ashlar blocks (probably robbed from Middle Phrygian/YHSS 5 buildings) and had a rubble core (Figs. 15-16; Sams and Voigt *In press*:Photo 6). The date of construction for this wall is still uncertain, but it had certainly gone out of use by the end of the third century BC, since a Galatian/YHSS 3A house was built over the preserved wall top in Operation 30 (Fig. 17; Sams and Voigt 1996:Fig. 7).

To the west, in Operations 34 and 35 the same sequence was repeated. During the fourth and early 3rd century BC, stone-founded mudbrick houses were built in this area, with well-preserved hearths and ovens (Sams and Voigt 1996:Fig. 8). Above these houses lay a building with ashlar walls and at least two construction phases (Fig. 17; Sams and Voigt 1996:Fig. 8; *In press*:Photo 7). This structure eventually burned, its tile roof collapsing onto the floor. Although there were few finds beneath the tile collapse, a painted bowl (Fig. 25) firmly dates the final use of this building to the beginning of the second century, and the destruction can be attributed to the army of Manlius Vulso which arrived at Gordion in 189 BC. Although we only excavated one corner of the interior of this structure, it is highly significant since it is the first example of monumental and presumably public architecture from the Galatian settlement at Gordion. Previous finds had been limited to houses, most of which were not very well built (e.g. see Sams and Voigt 1990:80, Figs. 4-9).

The Lower Town Cemetery

During the Galatian/YHSS 3A occupation, this part of the site was used as a cemetery. Excavation in Area B exposed a series of bizarre deposits that consisted of a mixture of human and animal bone. Although we initially thought that these deposits lay in shallow depressions or perhaps pits that had not been defined during excavation, a large sample showed conclusively that the deposits lay on an ancient surface that was ceramically dated to YHSS 3A. The Galatian "bone piles," excavated and analyzed by Jeremiah Dandoy and Sondra Jarvis, include: (1) the skull of a young woman who had apparently been decapitated (the first two vertebrae were intact) associated with a dog skull, as well as canid and human post-cranial bones (Fig. 18); (2) the skull of a second young woman with traces of wood in the foramen magnum; (3) two human torsos laid out one above the other, one of which retained its skull, associated with scattered animal bone and a disarticulated human skull (Sams and Voigt 1996:Fig. 12); and (4) a very

large pile that consisted primarily of animal bones, including partially articulated skeletons of equids and bovids (Fig. 19), but also contained a small number of human bones representing at least three individuals. There seems little doubt that these deposits document the remains of Celtic rituals including human and animal sacrifice and decapitation--activities that are also described and implied by historical texts.

In Area A (Operation 20) we again recovered bodies from a surface that lies above Late Phrygian deposits. Two young males (17 to 25 years old) were found in 1993, and in 1994 we excavated a female (17 to 23 years old) who was associated with a Hellenistic jar. All of these individuals had severely broken necks, and may again be seen as victims of the Galatian custom of killing sacrificial victims by hanging or garroting. In 1995 we found the first formal burial dated to the Late Hellenistic period, the grave of a young woman. She was wearing lion-headed gold earrings, duplicates of a single earring found in the abandoned Galatian settlement on the Citadel Mound by Rodney Young (Fig. 31j; DeVries 1990:Fig. 40).

4. THE ROMAN PERIOD: YHSS PHASE 2

The Citadel Mound

In Operations 29 and 30 we initially cleaned the poorly preserved walls of a Roman structure exposed by Young. Immediately beneath lay a building with a mudbrick floor, the brown bricks set in white lime plaster to form a distinctive pattern (Fig. 20). To the east lay a series of long narrow rooms, presumably for storage (Sams and Voigt *In press*:Plan 10). These buildings were bordered to the south by a street with cobbled paving and a sub-surface stone-lined drain (Fig. 21). Several construction phases can be distinguished, all overlying a series of enormous pits (maximum diameter over 2.5 m, and depth of over 1.5 m) that were presumably used for food storage. In addition to pottery and glass (Fig. 33), finds include fragments of molded terracotta figures, and bronze and iron artifacts ranging in size from a tiny razor and set of tweezers to a large hoe (Fig. 32d-e, g). Coins suggest a date ranging from the time of Augustus to the third century AD.

The Lower Town Cemetery

The Roman/YHSS 2 cemetery apparently extended across much of the Lower Town where a variety of burial practices were documented. Most common were inhumations, with both adults and children placed in simple rectangular pits or brick-lined tombs (Sams and Voigt 1996:Fig. 10); one brick tomb yielded traces of an inner coffin of wood (iron nails, wood fragments). Infants were placed in oval pits with stones set above the bodies. No pottery was included as grave goods with the inhumations, but they are securely dated by other diagnostic artifacts, including a coin, a tall-necked glass bottle, and fine jewelry including a copper ring set with a stone signet and a string of glass, amber, and metal beads with associated signet.

In Lower Town B two cremation burials were excavated. The best documented lay in Operation 23 where a rectangular trench was cut in the earth and the human bone set within it; when the bones were burned, the sides of the trench were fired to a bright orange. Calcined

bone fragments were found on the bottom of the trench, as well as in a gray ceramic jar set in a niche into one side; a glazed bowl used to cap the jar has an exact parallel from the Roman occupation on the Citadel (Sams and Voigt 1996:Fig. 11).

MAJOR TRENDS IN THE CERAMIC INDUSTRIES AT GORDION DURING YHSS 5-2

Robert C. Henrickson

1. INTRODUCTION

Study of the YHSS 5-2 local pottery industry continues to focus on ceramic technology in addition to quantified typological recording of wares, shapes, and attributes. The basic YHSS ceramic chronology developed through analysis of material from the 1988-89 soundings is being confirmed and strengthened (Henrickson 1993, 1994; Voigt 1994, n.d.). The 1993-96 excavations are adding both breadth and depth, especially to previously less documented phases: early to middle Hellenistic (YHSS 3) and Roman (YHSS 2). In addition to yielding a broader definition of the ceramic industry, the technological analysis focusing on methods of manufacture yields varied socioeconomic data: reconstruction of an ancient craft (working methods and organization); assessment of technical competence; definition of culturally distinctive technologies; and broader bases for assessing ceramic change and the effects of intercultural contacts on the local ceramic industry (Henrickson 1993, 1994, *In press a*, *In press b*; see also Root 1994).

Much of the ancient potter's craft can be reconstructed from examination of the pottery itself, since shape, size, forming and finishing methods, properties of the raw materials, and the organization of production are all interrelated (Rye 1981; Henrickson 1991, 1993, 1994, *In press b*; Henrickson and Blackman 1996). A complementary program of neutron activation (NAA) analysis, in collaboration with M. James Blackman, has so far run more than 640 ceramic samples (YHSS 10-4, Middle Bronze-Late Phrygian) and over 70 local clay samples (Henrickson and Blackman 1996). Taken together these analytical approaches afford insights into the broader ancient economy and society.

Gray wares constitute the majority of the assemblage (in terms of sherd counts) from YHSS 5 ($\pm 85\%$) through YHSS 3 ($\pm 75\%$) and provide the bulk of the basic household assemblages. The marked typological and technological continuity of this industry, and its relative simplicity of forms and attributes, complicate precise dating of the ceramic sequence. The best diagnostics for dating are presently the finer wares (both buff and gray/black), the decorated wares, the imported pottery (especially Greek), and local adaptations of imports. As material excavated in 1993-96 (more than 150,000 sherds) is analyzed in greater stratigraphic detail, better differentiation of the development of the common ware assemblages should result. The following comments touch on some of the major results of the ongoing ceramic analyses for YHSS 5-2 in the excavations from 1993 to the present.

2. THE MIDDLE PHRYGIAN PERIOD: YHSS PHASE 5

The YHSS 5 local assemblage consists overwhelmingly of gray/black wares in shapes derived from the Early Phrygian assemblage (Henrickson In press b; Sams 1994). The fabric tends to be very dark in color; the gray common wares tend to be somewhat friable, yielding ragged breaks. While small amounts of imported pottery (Greek, Lydian and Lydianizing, East Greek, and West Anatolian; DeVries 1977, 1990, 1996; Sams 1979a,b; Schaus 1992) may be found in YHSS 5 deposits across the site, their impact on the local industry remained minimal, judging from the paucity of identifiable copies in local fabrics or wares. Only the fortifications in the Lower Town excavated by Mellink seems to have had a relative abundance of Lydian pottery (Sams 1979b:48). The most distinctive wares for this phase include Black Polished, Gray Common Burnished, and Coarse Orange.

Black Polished Ware has a fine paste with no visible inclusions, and is fired at a higher temperature than the gray common wares. The hard fabric has linear and regular fractures. The interior surface has fine parallel horizontal smoothing or wiping striations; ridging ("wheelmarks") is absent. The characteristic lustrous finish is confined to the visible exterior surface and extends to just inside the rim; the best examples have a silky feel. Although the complete forming and finishing sequence remains unclear, the exterior surface was slipped, burnished to a polish, and given a thin wash carelessly applied to a limit which generally lies just below the end of the polished surface on the interior of the vessel. The use of an iron-rich compound for the wash, combined with reduction firing, would yield a black surface, darker than could the clay alone. Vessels are small (maximum diameter ≤ 15 cm) and tend to be closed shapes, including side-spouted beer-mugs, goblets, and wide-mouth pots (see Sams and Voigt 1991:Fig. 14, top row center; Henrickson 1993:Fig. 15). Horizontal fluting of the body is common. Incised decoration is simple, often consisting of panels of fine vertical grooves.

Some "fine" ware was simply well-burnished (self) slipped *Gray Common Ware*, whose surface often has a low luster. Vessel walls are much thicker than Black Polished (4-6 mm or more versus 2-3 mm). Profiles tend to be rounded rather than sharp and crisp. Ring bases were made by adding a strip of clay and are usually low and somewhat irregular. Bowls (conical, rounded, and horizontally fluted) and globular jugs are common shapes (see Sams and Voigt 1991:Figs. 14-15; Henrickson 1993:Fig. 14). Graffiti are common on the bases of bowls, produced by either burnishing before firing or scratching after firing (Sams and Voigt 1991:Fig. 15).

Coarse Orange Ware. A highly distinctive orange coarse ware appears to be unique to YHSS 5. The orange fabric contains abundant, relatively coarse grit and lime inclusions; the hardness and occasional lime spalling suggests a firing temperature of $\geq 800^{\circ}\text{C}$. Exterior surfaces are smoothed to a matte finish, while the interior may be left unfinished. This fabric was used exclusively for large storage jars with a wide, flat ledge-rim, a high and wide shoulder, and lower body tapering to a relatively small diameter base (see Edwards 1959:265, Fig. 10).

A characteristic minor but highly distinctive ware is *Phrygian Polychrome*. The fabric is a buff common ware. Most, if not all identifiable shapes are closed forms. The interior is left unfinished or poorly smoothed while the exterior is smoothed. A thick red to orange to red-brown overall paint usually defines panels or metopes on the shoulder. Within this ware dark brown (black) and red naturalistic or geometric motifs are painted on a cream or white background. The whole surface is burnished to a low gloss.

One YHSS 5 context excavated in 1993-1995 is noteworthy for its ceramic finds and broader implications. Operation 22 in the Outer Town yielded evidence for a seventh century BC occupation. A number of restorable vessels, including beer mugs, large storage jars, and Early Phrygian style painted ware, were found together in what seems to have been a pithouse (Fig. 22; Sams and Voigt 1995:376-377, Fig. 12). Black Polished Ware is found here in a modest house in the Outer Town as well as in the Lower Town, not just in the more elite areas on the Citadel Mounds. NAA has shown that pastes of the common ware pots and large storage jars from Operation 22 are similar to those elsewhere in the city, suggesting that pottery workshops supplied the entire range of the city's population (Henrickson and Blackman 1996 and unpublished NAA analyses).

Copying of foreign vessel shapes is uncommon during YHSS 5. Although Lydian political control over Gordion has been presumed from at least the early sixth century BC, its nature remains unclear. Not just the household common wares but even the local fine wares exhibit little identifiable evidence of foreign impact on either shapes or finishes. Fruitstands provide perhaps the notable exception of local copying; the use of local burnished gray ware suggests heavy assimilation. Despite the relative abundance of lydions in mid-sixth century contexts and later, local copies are not readily identifiable. Perhaps their primary use as packaging for the desired commodity, assumed to have been unguents, may have obviated demand for local copies. A second hint of limited foreign impact on the late YHSS 5 assemblage may be seen in the small to medium diameter carinated bowls in gray ware, which have their best parallels in western Iran during the Iron III period (ca. 800-500 BC; Goff 1978, 1985; Young 1969; Young and Levine 1974; R. Stronach 1978). Given the apparent date of the deposit, Median rather than Achaemenid links may be suggested, since Median control had reached the Halys, not too far to the east.

3. THE LATE PHRYGIAN PERIOD: YHSS PHASE 4

During YHSS 4, gray wares or the primary domestic household pottery still dominate the assemblage, and show considerable continuity from YHSS 5 in both shapes and specific attributes. Although a greater range of "Lydian" (Figs. 23, 30f-g) and "Lydianizing", Greek, and East Greek pottery continues to arrive and becomes more common across the site, it continues to have relatively little impact on the local assemblage.

Despite the essential continuity of the dominant gray wares, fundamental changes in the local ceramic industry do occur early during YHSS 4, probably within decades after the Persian conquest. The finer wares in particular exhibit dramatic changes. The frequency of black polished and well-burnished gray wares decline (12% to 6%), as buff finer wares increase (0.1% to 12%). The widespread changes among the finer wares mark at least two major technological turning points in the local ceramic tradition: (1) expanded use of the potter's wheel in all stages of pottery production (for initial throwing, subsequent shape modification, and painting of decoration), and (2) use of oxidation rather than reduction firing, particularly for fine(r) wares. Small YHSS 4 vessels, especially bowls and pots, provide extensive evidence for use of rapid rotation in all stages of production, with primary and secondary forming and finishing done on a wheel. Profiles are precise, with details sharp and often angular. As an example of the pervasive

use of a wheel, buff fine ware bowls were thrown with thick bases, then when leather-hard inverted on a turntable and rotated as clay was cut away, yielding a ring base with a precise profile; later, painted band decoration might be added as the vessel rotated. This extensive use of rapid rotation and cutting away of clay to shape parts of a vessel is an entirely different approach to forming and finishing from the predominant handforming and adding of clay which was characteristic of the YHSS 5 industry.

Buff becomes the dominant fine ware fabric color, with its increased frequency more than outweighing the decrease in gray/black finer wares. Calcareous clays fired in an oxidizing atmosphere yield the light-colored fabric; decoration consists of red to red-brown or even brown paint applied either freehand or while rotated on a wheel, or a partial slip. Variations in the quality and nature of the painted and slip decoration suggest that a number of different types of painting techniques were used. Characteristic shapes include shallow bowls, often carinated, with triangular or flat everted rims and either flat or ring bases, and globular pots with everted necks and rims.

Black Polished Ware continued in YHSS 4 at a reduced frequency, with vessels having perhaps somewhat thicker walls and more elaborate decoration. Decoration consisting of fine burnish lines is incorporated within the framework of incised or engraved lines already characteristic in YHSS 5 (Henrickson 1993:Fig. 18). In addition, gray, and occasionally buff (misfired gray?), fine ware bowls with well-smoothed/self-slipped surfaces sometimes have pattern burnishing on both the interior and exterior surfaces (Fig. 30h). This consists of fine strokes (width (1 mm) of lustrous darker gray forming radial motifs, concentric bands, cross-hatch, or squiggle garlands on a matte gray ground (Henrickson 1993:Fig. 19.2). In YHSS 5, pattern burnishing on burnished medium-fine wares had used relatively wider working points to produce strokes (1-2 mm wide) in simple patterns, primarily grids and broad bands on the bases of bowls (see Sams and Voigt 1991:Fig. 15).

The origins of the *Buff (Fine) Ware* remain obscure. Although the prior low frequency of buff wares in the local assemblage suggests an alien origin, oxidation firing and painted decoration were already known locally but little used. The increasing presence of the intrusive Lydian or Lydianizing and Iranian traditions, both dominated by buff wares, may have encouraged use of this previously little-used technology (see Blackman 1988). The banded decoration may derive from the Lydianizing tradition, as may some shapes; fruitstands had already been assimilated into the local shape repertoire in later YHSS 5. Yet although a wide variety of Lydian and Lydianizing imports are numerous in YHSS 4 strata, particularly lydions, their impact on the local industry remains minor at best, judging from the rare identifiable copying of characteristic shapes in local wares. Limited and isolated Lydian elements seem to be assimilated into the local ceramic tradition, such as "marbling" of background fields in local painted polychrome decoration.

Typologically, the YHSS 4 assemblage includes an increased number of forms and rim profiles, in both relatively fine gray and buff wares, which have parallels in mid-first millennium western Iran (Fig. 30a-e; Henrickson In press a). Other shapes or attributes which were long characteristic of Gordion, such as trefoil mouth jugs, also have Iranian parallels and may thus result in an underestimation of the Iranian impact. Although the painted decoration on buff ware at Gordion (usually bands) is quite unlike typical contemporary Iranian material, sometimes the fine pattern burnishing on small bowls resembles elements of "Triangle Ware" painted decoration (for Triangle Ware see Dyson 1965; Levine 1987; Stronach 1974; Dyson and Hill, personal

communications). Such an impact might be expected, given that Achaemenid forms even entered the Attic Black Glazed Ware repertoire (Miller 1993).

Variability in the ceramics found in different areas of the settlement is evident. Two relatively simple vessels found in the Outer Town (Operation 32), may actually be Iranian in origin. A two-handled vessel with a tall flaring neck and globular body (Figs. 24, 30i) has parallels at Iron III sites (ca. 800-500 BC) in central western Iran (R. Stronach 1978:Fig. 5, 7.13-14; Goff 1985:Fig. 9.5, 22; Young and Levine 1974:45.20). A sherd from a flat-rimmed bowl with painted decoration on the upper surface has abundant parallels in later triangle ware from Hasanlu IIIA and other mid-first millennium BC western Iranian sites (Dyson 1965; Young 1965; Stronach 1974; Levine 1987).

Greek imports increase markedly, including not only luxury goods valuable for themselves (e.g., black-figure and black-glaze pottery), but also commodity containers (e.g., transport amphoras for oils or wine) from a wide range of origins (DeVries and Lawall below; see also DeVries 1977, 1990, 1996; Osborne 1996). Greek Black Glazed Ware becomes a minor but appreciable component of the fine wares ($\pm 1\%$ of all sherds in later YHSS 4 contexts).

Whatever the nature of the earlier Lydian political influence or control over Gordion, its cultural impact as reflected in the local ceramic repertoire seems to have been minimal. It was the Achaemenid conquest which opened the door wide to foreign influences at Gordion, contrary to the common truism that Achaemenid control had little impact on local material culture in the imperial provinces. Similar patterns are emerging in studies of other parts of material culture (Root 1991, 1994). Early in the Achaemenid/YHSS 4 era, the local ceramic tradition began to show strong assimilation of both alien vessel forms and production technologies. The foreign impact increased in both breadth and depth with time. Gordion had far-flung trade connections (e.g., the various Aegean islands and coastal regions represented by transport amphoras; see Lawall below; see also Graf 1994) and a prosperous local economy within which the population may have begun to become more diverse.

4. THE HELLENISTIC PERIOD: YHSS PHASE 3

The indigenous gray ware tradition continues, primarily as a medium for household vessels, but the repertoire of vessel forms now exhibits the increasing impact of foreign influences. Buff wares remain an important minor component of the assemblage (c 25%). Painted decoration is generally simple, consisting primarily of slips and horizontal painted bands. Imported Greek Black Glazed pottery is relatively abundant ($\geq 1\text{-}2\%$ of all sherds). More notably, by the end of the fourth century BC, typical Greek Black Glazed vessel forms (such as echinus bowls, fish plates, and kantharoi), and decorations like stamped palmette are copied in well-finished local gray fine or even buff (some painted) wares. Despite the earlier use of washes to blacken surfaces, almost all such Hellenistic copies simply used burnished gray ware (Winter 1984, 1988). Unguentaria also were incorporated into the local assemblage, made in both painted buff and gray fine wares (Sams and Voigt 1990:Fig. 8b-d; Edwards 1959:266-267, Figs. 16, 21). An unusual form is an animal headed rhyton in polished gray ware (Fig. 31i).

Gordion was firmly enmeshed in the Greek world during the YHSS 3/Hellenistic era. Although the gray ware tradition continued to be numerically dominant, foreign technologies

and vessel prototypes were being increasingly assimilated into the local ceramic repertoire. This suggests the strength of the Greek impact on the material culture of Gordion in Hellenistic times.

Although strata dating to the early to mid-third century BC have yielded abundant evidence for new cultural behaviors which seem to mark the arrival of the Galatians, the contemporary pottery provides little if any evidence for a new ethnic group in the population. Intrasite variability is characteristic of YHSS 3 but becomes especially pronounced during YHSS 3A, when each neighborhood on the Citadel Mound seems to have a distinctive ceramic corpus.

5. THE ROMAN PERIOD: YHSS PHASE 2

This ceramic industry has no evident connections with that which had characterized Gordion from early in the first millennium BC. Most small to medium sized vessels have fine pastes (buff to orange-red) and varied finishes, including red or orange glazes and red to red-brown slips (partial and complete). Shapes include conical carinated cups, elongated rounded cups with tab handles, shallow casseroles with rolled rims, bowls with incurved rims, and wide-mouthed pots with everted rims (Fig. 32a-l; Sams and Voigt 1996:Figs. 5-6, 11). Widemouth jugs with offset rims are made using a distinctive thin-walled gray common ware with poorly smoothed surfaces (Sams and Voigt 1996:Fig. 11).

6. OVERVIEW

The gray ware ceramic tradition established in the early first millennium BC persisted until the Roman incursion in 189 BC. Neutron activation analyses, concentrating on common wares from YHSS 10-4, have begun to outline broad trends in pottery production across centuries and political and cultural transitions. Not only methods of forming and finishing, but even choices of clay sources shift through time. The Achaemenid conquest seems to have first opened the local ceramic industry to substantial assimilation of alien technologies and vessel forms from a number of traditions. The greatest changes, however, occurred during the Hellenistic period, when the profound Greek impact on material culture is evident in the extensive adaptations of foreign prototypes.

GREEK FINE-WARE

Keith DeVries

The first two seasons of renewed excavations at Gordion in 1988 and 1989 did much to illuminate the importation of fine Greek pottery in the Late Archaic and Classical Greek periods, a time when the Hellenic vases reaching the site were nearly totally Attic. Analysis of the full range of ceramic finds from contemporary levels at Gordion (roughly the late 6th to the late 4th century BC) by Robert Henrickson indicates that the importation was relatively heavy during this time span: Henrickson has estimated that the Attic material represents about 7% of all fine-ware

sherds from YHSS 4. Within this sample, the most common type of Attic pottery was black-glaze, either plain or embellished with stamping. This revises our previous picture. The informal retention policies of earlier seasons had produced a misleadingly high proportion of figured pottery, both black- and red-figure. Recording and retention of all sherds since 1988 reversed the proportions, producing three times as much black-glaze as red-figure and six times as much black-glaze as black-figure. These ratios are compatible with 5th century deposits in the Greek mainland, at the Athenian Agora, and in Corinth, where Attic black-glaze is overwhelmingly more common than is figured work (DeVries 1996).

The 1988-89 seasons, however, produced comparatively scanty information on the earlier stages of Greek pottery importation. Recent campaigns have gone far to remedy that lack. The earliest piece found since 1993 is a handle from a vessel which is either Corinthian Late Geometric (c 750-720 BC) or Early Protocorinthian (c 720-690 BC). It boosts to eight the known number of Greek vases reaching Gordion in the 8th and early 7th centuries. Interestingly, a large majority (6) of these early imports come from Corinth, while only one is from the much closer East Greek sphere. The only other piece within this early group comes from the island of Euboea, just off the Greek mainland.

The next earliest piece from the recent work is an unusual Middle Wild Goat II lid, dating to ca. 625-600 BC (Fig. 26) which Michael Kerschner suggests may have come from North Ionia or Aeolis (pers. comm.). The overall record at Gordion, including all excavated material since 1950, indicates that there was an interruption in Greek importations after the early 7th century, with a modest recommencement in the third quarter of the 7th (3 vases being so far known), and that there was then a gradual increase over the next generations.

Numerous Greek finds from the new seasons date to the first half of the 6th century and demonstrate the great range of Greek and Greek-related pottery then reaching the site. A kotyle sherd with the busts of two facing women belongs to the class known as Early Fikellura or HoB Ware (Fig. 27). This type of pottery has been found only at Sardis and Gordion (Schaus 1992), and the evidence has been ambiguous as to whether the ware is Greek or Lydian. The figure style on the new sherd is quite like that on pottery fragments found at the North Ionian city of Phokaia (Akurgal 1993:Fig. 103 a-d) and as such boosts the case for a Greek origin.

The definitely East Greek pottery of the first half of the 6th century is constituted by plain wares, including a household amphora that may be from Chios, and a number of the cups known as "banded bowls." Ripe Corinthian style was found in the new work, as were two of the earliest Attic sherds ever to turn up at Gordion: a fragment of a Siana cup and a sherd from a black-figure Corinthianizing vase, both of the second quarter of the sixth century.

Extremely important for many aspects of Gordion is a very large, mid-6th century BC deposit from Operation 17 at the southwest of the Citadel Mound (Fig. 2). Part of this large trash pit had been dug in 1950 and 1989, and intensive new excavation began in 1995. While much sorting and analysis of the huge amount of material recovered will be required, a partial report can be offered on the Greek fine-ware that provides the close dating for the deposit. There are two sherds from an Attic black-figure column krater by the celebrated vase painter Lydos. A third sherd from this vessel was recovered from a partly contemporary deposit along the northwest bastion of the Middle Phrygian/YHSS 5 circuit wall, and a fourth is probably from the same area. Stemming from Lydos' middle phase, the krater dates to around 555-540 BC (Fig. 28). Also found was most of an Attic black-figure Gordion cup, bearing a signature by Sondros as

potter; the letter forms are from the second stage of his signatures and provide the narrow dating of ca. 555-550 BC. A third chronologically helpful Attic fragment is a sherd from a black-glaze olpe dating ca. 575-550 BC. Other Attic material includes a black-glaze stand (?) and one or two black-figure or black-glaze cups.

Among the Corinthian pottery of the deposit are three black-figure vessels, probably all Middle Corinthian (c 590-570 BC), and a non-figural miniature skyphos. A black-figure cup sherd has an, as yet, undetermined provenience. A fine fruit stand may be East Greek rather than Lydian or other Anatolian, but the East Greek material is otherwise quite plain, including two wave-line vessels and a perhaps Samian black-glaze jug. It should be noted that it is already clear in advance of detailed analysis of the Operation 17 pottery dump that Greek pottery is not the most frequent import, being outnumbered within this context by Lydian pottery.

Imported fine Hellenistic pottery was more abundant during 1993-1995 than in the previous two campaigns. Most important were fragments of two Megarian bowls of the "imbricate" type belonging to the initial phase of the Megarian production, as established by Susan Rotroff (Fig. 29; see Rotroff 1982:15-17). In view of the desertion of Gordion in 189 BC. and the absence of new settlement until early Roman Imperial times, they furnish a *terminus ante quem* for the commencement of production.

GREEK TRANSPORT AMPHORAS AT GORDION

Mark Lawall

Pottery found during the 1988-95 seasons was given priority during my initial examination of the Gordion amphoras (1996). This material forms a definable sample and since all pottery recovered had been saved, the problem of post-excavation biases entering the sample was reduced. Stamped amphora handles as well as other jars and fragments found during the Rodney Young excavations were also studied, though there is much material from these earlier seasons still awaiting attention. Diagnostic fragments (rims, some handles, toes, some body sherds) were cataloged, recording fabric characteristics, dimensions, state of preservation, and findspot. Poorly diagnostic fragments (handle and body sherds) were listed in more summary fashion, as were frequently repeated examples of the same type. Once stratigraphic phases are established for the most recently excavated trenches, it may be possible to use the findspots to refine the dates of the less diagnostic fragments.

Even before stratigraphic data and all possible methods of quantitative analysis are incorporated into this study, certain features of the Gordion amphoras may be noted. Only three fragments of amphoras date before 525 BC. Among the many fragments datable between 535 and 480 BC (over 60 accounted for thus far), Chian (Fig. 31a-b) and Lesbian (Fig. 31c-d) jars are the most common, with amphoras roughly attributable to the region of Samos and Miletos (Fig. 31e) also fairly frequent. Amphoras from northeastern Greece, Thasos, and the adjacent mainland toward eastern Macedonia, are rare (Fig. 31f). During the middle 50 years of the 5th century, the number of imports seems to decrease substantially; Chian jars are still present along with jars from the Samian region and northern Greece, but amphoras from Lesbos are no longer present. In the last quarter of the 5th century, moving into the 4th century, amphoras from northern

Greece (Fig. 31g) become the most common type, and the mushroom-rimmed Solokha I type appears (Fig. 31h). This latter type is produced in the southeast Aegean, particularly on Kos, Rhodes, Knidos, and probably Samos. Chian amphoras continue to be found at Gordion from the late 5th through the 4th century, but they are never so common as they were in the early 5th century. Northern Greek imports outnumber those of the southeast Aegean throughout the 4th century, especially as a large number of stamped Thasian handles appear in the second half of the 4th century. In the 3rd century, northern Greek amphoras lose their dominance among the imports in favor of southeast Aegean material, especially Rhodian amphoras. Many Rhodian stamps found at Gordion date to the late 3rd century, but there are also many unstamped fragments attributable to Rhodes from earlier in the century. Amphoras datable after the Galatian abandonment in 189 BC were not studied for this report.

Even this preliminary record of Greek amphoras at Gordion permits a number of comments concerning the economic and political history of the site. The material datable between 600 and 480 BC is quite useful for studying the impact of Persia on Aegean trade with inner Anatolia. Before the Achaemenid Empire reorganized Anatolian connections with Aegean cities, there was virtually no freight trade between the Aegean and Gordion. Greek fine wares do arrive (see above), but the logistical arrangements for importation of transport amphoras overland would have been much more elaborate. After ca. 525 BC, when the Empire exerted more direct influence over island Greek amphora exporters, Gordion began to receive shipments in amphoras. The role of the Persian Empire in this trade is further supported by the types of amphoras involved. On the one hand, the large number of Chian jars is not surprising: Chian amphoras of this period are attested in large numbers at many sites throughout and beyond the Aegean. The small number of Northern Greek amphoras, however, is surprising. These jars are very common in contemporary Athens and elsewhere in the Aegean; at other sites within the Persian Empire, however, northern amphoras seem rare. Early 5th century Gordion is very much a 'Persian' site in terms of its freight imports from the Aegean.

Another aspect of these early 5th century patterns may help identify routes by which these jars arrived at Gordion, and here the evidence is related to the Phrygian identity of Gordion. The amphoras from Lesbos, which are quite common at Gordion, are not commonly found at Aegean sites. At contemporary Athens, for example, they are quite rare. Such amphoras, however, are quite common at sites along the north coast of the Black Sea; Lesbos may have had a general orientation of trade that favored the East (Thuc. III.2). At the same time, other artifacts, particularly gray-ware pottery, suggest close ties extending from Lesbos, through Hellespontine Phrygia to Gordion (Spencer, BSA 1995, DeVries pers. comm.). The possibility that Gordion tapped into a Black Sea trade, as might be suggested on the basis of Lesbos' trade with the Black Sea, is rendered less likely by the absence of Klazomenian amphoras at Gordion. A strong Klazomenian presence is characteristic of late 6th and 5th century imports in the Black Sea. We may therefore conclude that the Lesbian jars arrive through Hellespontine routes.

Moving through the 5th century and well into the 4th century, useful geographic anomalies in the frequencies of imports disappear. A reduction in Chian imports and a concurrent increase in Northern Greek imports are noted both at Gordion and at Athens. Imports during this period may be more related to general patterns of trade throughout the Aegean as opposed to a reaction to specific Persian or Phrygian influences. It is possible that once Persian control of the west

coast is reduced, Greek trade continues exploiting Persian infrastructure, but without as much Persian influence over sources.

From the end of the 4th century through the beginning of the 2nd century, the range of imported amphoras seems to decline at Gordion and there are significant differences from contemporary patterns nearer to the Aegean sources. Most of the Thasian stamps are attributable to the late 4th century, not surprisingly given the large proportion of northern imports in the unstamped pieces. The dominance of the southeast Aegean among the Gordion imports of the 3rd century is clear. A strong presence of Rhodian and other southern imports is not surprising; what is unusual is the small number of imports other than Rhodian. No double-reed Koan handles are found, and there are few fragments identifiable as early Knidian. Galatian Gordion appears to continue earlier commercial activity just as Livy (38.18) attests, yet the range of sources seems limited. No explanation for this anomaly is offered at this time, but it does pose a question for further research on the Galatian influence on Aegean and Anatolian trade.

Even at this early point in the interpretation of data from Gordion, very evocative patterns have emerged. In terms of method, the results confirm both the need to study all fragments, both stamped and unstamped, and the benefits to be derived from a more comprehensive study.

ALLUVIAL BURIAL OF GORDION

Ben Marsh

1. INTRODUCTION

Stratigraphic and topographic research at Gordion demonstrates the alteration of the site by the Sakarya River. As the river raised its bed through sedimentation that was initiated by accelerated soil erosion in the watershed, it buried low-lying parts of the city and eroded out portions near the meander belt: the total area of the site within the valley of the river is at least three times as large as the three mounds that presently breach the alluvium, and approximately 2 km of outer defensive wall were eroded away by the river.

A summary of the influence of the Sakarya River on the site is best presented by describing the characteristics of five distinct forms that the river assumed during the period of human occupation near Gordion. The river is given a stage designation for each of these forms, from SAK I to SAK V (the present river).

2. THE ALLUVIAL SEQUENCE

SAK I

In the period before Gordion was founded the river transgressed periodically across the width of the valley. It probably derived much of its form from events at the end of the Pleistocene, when significant glacial meltwater from the Taurus Mountains passed through the Sakarya.

At least two, 2 m cycles of coarse-to-fine-sand fluvial deposition underlie the entire valley between the bluffs that border it to either side of the site.

SAK II

During this period the river was gravel-bedded, straight, and graded to a floodplain at more than 3 m below the present alluvial plain. The bed of the river was located in the middle of the valley (to the east of the Citadel and Lower Town; Fig. 34). The most distinctive buried feature at Gordion is a nearly-continuous paleosol marking the level of the floodplain on which the settlement was built. The paleosol is encountered at a consistent depth in most bore-holes. This deposit is widespread, uniformly fine-grained, and distinct from the material below it, extending along the river for several kilometers beyond the limit of the site. It is identifiable as a light-blue silty layer approximately 10 cm thick, with sherds or brick-wash above it and culturally sterile silt-and-sand interbeds below it. When seen in weathered section along the channelized river (SAK V) the paleosol is a massive tan (10 YR 5/3) layer, 20 cm thick, with a characteristic "Swiss-cheese" look.

SAK III

During this period the river bed was sandy and slightly gravelly, and lay 6 m below the present alluvial plain along the east side of the settlement. SAK III was meandering and transported large amounts of silt. The river had begun to aggrade significantly by the fifth century BC and probably earlier (see below). It eventually buried many hectares of the settlement under 3 to 5 m of fine-grain sediment. This layer of tan silt, an overbank deposit laid down during flooding, is the lowest non-cultural layer stratified above ancient occupation levels.

Several lines of evidence suggest that the burial process began during pre-Roman times, and continued to the 20th Century. Two well-preserved pieces of wood were recovered from SAK III sediments in 1995 and dated by ^{14}C analysis. Each piece had been preserved below the water table within the alluvium, and each was exposed in the bank of the present, dredged river channel. The first sample was from an 70 cm-diameter upright stump rooted in the paleosol. The age of the outer rings of the stump is 2460 ± 50 years BP (Tx 8532), equivalent to a tree-ring-based calendar date of 770 to 410 BC at 95.4% confidence (Bronk 1994). The second sample was a 12 cm diameter trunk of a conifer found exposed 1.9 m below the present river plain, approximately 1.3 m above the paleosol. Its age is 1010 ± 40 BP (Tx8533), equivalent to 975 to 1035 AD at 95.4% confidence (Bronk 1994). Another key observation is the presence of sherds of Greek or Roman fine ware at the top of SAK II gravels exposed 5.4 m below the present plain. The most direct interpretation of these data is that aggradation began about 700 BC, and continued more-or-less constantly to the present.

The volume of fluvial material in the Middle Phrygian/YHSS5 clay layer and similar cultural deposits suggests that the Sakarya was providing abundant sediment somewhere near the site. But other evidence shows that the site was abandoned and decaying by the time it was finally buried; that is, the burial was not primarily associated with events in antiquity. Where both SAK III overbank material and cultural material are present in an exposure or a borehole, the silt always buries collapsed structures.

In summary, the evidence is complex and somewhat contradictory, but it appears that significant aggradation began no later than 410 BC (the most recent possible date for the burial of the C14 dated tree stump). This implies that occupants of the ancient city were confronting – and exploiting – an aggrading river. Flood-control measures (such as channel-dredging and floodwalls) and flood-avoidance measures (such as the construction of platforms beneath buildings) would be likely responses. Some evidence exists for each. Aggradation continued for over two thousand years, at long-term average rates between 1.4 and 1.9 mm/yr. This compares to apparent Holocene aggradation rates for SAK I of 0.3 mm/yr. I argue that this process of accelerated aggradation was driven by large-scale changes in land use in central Anatolia, specifically more intensive (and extensive) grazing by herds of caprines. In any case, it is clear that the environmental change responsible for the alteration of the Sakarya River was not local to the area immediately around Gordion, but was a basin-wide event. Sedimentary sequences nearly identical to the SAK III overbank deposits are seen in river-channelization cuts 10 km downstream and 40 km upstream.

From an archaeological point of view, SAK III is significant not only because it buried the site, but also because it destroyed some portions of it. The meandering movement of the aggrading Sakarya removed several segments of the outer city wall, creating the distinctive discontinuous pattern apparent today. Evidence suggests that the outer wall was large but weak, and thus prone to stream erosion. The most visible part of outer wall curves out to the north and west of the Küçük Höyük, forming two horns. As shown by Mellink's excavations, a 500 m length of tall mud brick wall shielded the southeastern edge of the settlement, but the wall disappears abruptly at the edge of the river plain in both directions (Young 1966). SAK III channel deposits are present adjacent at the tip of each horn, indicating that the walls were removed by the stream after abandonment of the city. Evidence of a similar pattern of walls connected the Kuş Tepe is visible upon close inspection.

The upper portions of the walls were constructed of mud brick, and highly prone to removal by the river. The outer wall seems to be much less substantial than fragments of a large, stone, inner wall visible in the SAK IV channel and the SAK V bank adjacent to the Citadel Mound (Fig. 34).

SAK IV: The River Shifts Courses

Following a major course change, the river flowed on the west side of the mound. This stream was shallow – 2 to 3 m depth – and meandering. The reach (straight segment) flowing through narrows to the north of the Citadel Mound was steep and energetic where it was superposed upon blocky urban material. Above the narrows the river's gradient was very low and its sinuosity was high. Several factors were probably involved in the shift of the river bed from the east to the west of the site. In addition to the natural tendency of an aggrading stream to sequentially occupy all parts of its plain, local human actions may have facilitated the shift.

SAK V: Modern Dredging

The channelized river excavated by the Turkish government in 1967 is straight, and cut 3 m to 5 m below the SAK IV river plain. This stream is beginning to re-establish meanders over much of its length; it presently averages about 20 m in width, with a gradient of approximately 1:1000.

CONCLUSION

The Sakarya river has wrought important changes upon Gordion over the last three millennia – extensive burial, lateral erosion by an aggrading stream, and downward erosion into structures after the river shifted to the west side of the mound. The major changes in the behavior of the stream that initiated this impact on the city were probably caused by increases in grazing density. Tributaries yielded large amounts of fine-grain alluvium that choked the Sakarya River and raised its bed and floodplain. At least some of the tributaries are now downcutting, as the supply of soil is eliminated from certain steeper watersheds.

ETHNOARCHAEOLOGY AT YASSIHÖYÜK (GORDION): Space, Activity, Subsistence Ayşe Gürsan-Salzman

This report is concerned with space/activity/subsistence relationships observed in a courtyard. Archaeologically, "the courtyard" is frequently recognizable as an exterior space with structures such as a hearth, pit, oven, etc., but is loosely defined as a spatial concept. Study of courtyards is a component of the ethnoarchaeological project that was initiated by this author in 1994, which has as its goal a study of modern village farming/herding practices and land use at the village of Yassihöyük. The project is based on the premise that observation of a contemporary village community plays an important role in reconstructing and explaining the past. In using the ethnoarchaeological approach, it specifically addresses archaeological questions which concern the economy of the ancient settlement at Gordion and its region.

Ethnographic studies of architecture of modern village communities of the Middle East has been going on for several decades. Only few of these studies, however, link architectural features to socio-economic correlates (Weinstein 1973; Hall et. al. 1973; Watson 1978; Kramer 1982; Kent 1987, 1990; Horne 1994; Kuban 1995). Using the village of Yassihöyük as a case study, comparison is made here between two types of courtyards – one with its main focus on herding and the second on agriculture – in order to delineate the patterning of spatial organization and the traces of residues left in each courtyard type.

1. ETHNOGRAPHIC SETTING AND SUBSISTENCE

At present, Yassihöyük (YH) village represents a mixed farming economy that is above subsistence level. A medium-sized village in the Polatlı township, YH with a population of 412 living in 80 households utilizes an area of nearly 2,500 ha for subsistence (1,600 ha arable land; 400 ha grazing land). Its ethnic composition is largely Turkish, with a small percentage of Kurdish, Tartar and Romanian families.

Most of the villagers are farmers. Wheat and barley are the primary crops which are grown on unirrigated land, about 75% of total arable land; cash crops such as melon, sugar beet and onion which require large investments in irrigation and labor are grown on the remaining 25% of the arable land. For optimum yield and profit, a YH farmer divides his land in the following

proportions: 40% cereals, 25% sugar beets, 25% fallow and 10% water melon and fruit orchards. Each household also has a courtyard garden in which seasonal vegetables are grown for sale and home consumption.

The most critical resources for farmers at present are water and labor. Most arable land is used for cereals that are partially irrigated with water drawn from wells by diesel fuel or electricity. The infrastructure for well-irrigation and diesel oil are very costly, so crop rotation, fallowing and use of chemical fertilizer are critical for maintaining high productivity of cereals, which constitute the food for people and animals. The best arable land is in the west next to the Sakarya river, where small plots of 4-8 ha are irrigated for sugar beets. Sugar beet is the most profitable cash crop, despite high investment in irrigation and hired help; the return from sugar beet is 300% compared to 50% from wheat. In addition, the farmers say, sugar beet is a less risky crop in that it is not affected by hail (it is a rootcrop) in the way that cereals are, and the stalks are a nutritious source of feed when mixed with hay for fodder. The average size of farmland under private ownership is 15-20 ha, but the four wealthiest households own about 100 ha each, and some families rent 3-5 ha from the government lands which were originally set aside for grazing.

Herding is also an important subsistence activity in YH, with approximately 2,200 sheep and goats (Angora variety) owned by villagers. These are not, however, evenly distributed; 16 households rely primarily (but not exclusively) on herding, each household owning 80-200 sheep and goats. The majority of the population rely primarily on agriculture and keep only 10-20 sheep per household. The interrelationships between farming and herding is complex. Keeping livestock, sheep and goat is feasible only as part of a mixed farming strategy. Ideally, in this region farming and herding "feed" each other.

Until the late 1950's farming was generally done with plough and oxen and traditional tools, dry farming of cereals was supplemented by canal irrigation of sugar beets and fruit orchards. After the widespread use of tractors in early '60s and the arrival of electricity in 1975, agriculture became more intensive, with sugar beet production increasing 5-fold; the latter came at a high cost, requiring hired labor from outside the village for weeding, and electricity and fuel to run the irrigation pumps. At the same time, a series of factors led to a deterioration of arable land. Clearance of a wooded region to the north of the village in order to obtain more land for intensified agriculture and for fuel resources to accommodate a growing population, resulted in an alteration of the natural environment, namely, decreased rainfall and a lower water table. Reduced fallowing of cultivated land resulted in lower productivity. On the other hand, it is interesting to note that despite diminishing grazing land, the total number of sheep has remained nearly the same since the 1940's (2354 in 1963; 2100 in 1994).

One of the problems being investigated during the current study is the nature of interrelationships between agriculture and pastoralism. What kinds of decisions are made by Yassihöyük farmers in order to reduce risk and thus increase production? Among the present strategies, of primary importance is the sensitive scheduling of agricultural and herding cycles, as well as the domestic cycle (food processing and storage, wool processing, weddings, etc.). For men, the rhythm of agricultural activities (from the preparation of fields, through planting, weeding, harvesting, and fallowing to the transport of crops) and parallel herding activities (from the birthing of lambs, shearing of wool to the processing of milk) requires the meticulously calculated scheduling and organization of labor. Women, in addition to participating in some

of the above activities, are also engaged in gardening and marketing their vegetables, food processing, and food storage during summer and fall months.

2. COURTYARD STRUCTURES AND ASSOCIATED ACTIVITIES

At Yassihöyük the courtyard house is the typical dwelling unit as it is in most of the mudbrick villages of the Middle East. The house is generally part of a walled compound which encloses a number of buildings and installations for people and animals. The courtyard functions as an extension of the house, an amorphous space where people make activity choices, ranging from baking bread to making dung cakes, gardening, drinking tea and gossiping. It also serves as a "transitional space" between the privacy of house interior and public village grounds. The courtyard shape and size varies not only according to household size and/or wealth, but also according to the type and arrangement of structures within it and the amount of land which the villager originally allocated to himself. (Only after Government land reform in the 1960s was land distributed to the landless, the amount based on family size.) Within each type of courtyard, there are four categories of installations: (1) roofed dwelling space (the house), (2) cooking facilities, (3) storage rooms, and (4) animal pens. The structures in the courtyard form a nucleated pattern and are normally linked to the main house. Access to each is from the courtyard. The most significant clues to the relative intensity of cultivation and herding activities are the larger size of cereal storage installations in the courtyards of families emphasizing agriculture, and a complex of sheepfolds in the courtyard of herding families. The activities and structures discussed below are specifically selected as they are likely to leave traces in the archaeological record.

a) The Village House (Fig. 35)

The typical house is a one-story mudbrick structure, with a fairly large courtyard, ranging in area from 2,000 to 500 sq m and surrounded by a stone or mudbrick wall. While older houses have mud plastered flat roofs, more recent ones are built with tiled thatched roofs. Rectangular in plan, a typical village house consists of four square or rectangular rooms: two bedrooms, a living/guest room, and an ante-room which doubles as a kitchen or utility room. The rooms vary in size; the living room, which usually doubles as a bedroom, is usually the largest of the four. Access to the house is through the courtyard gate which leads to a small garden, surrounding the house proper. An external staircase leads to a roofed platform of poured cement, called "seki" or "hayat", and from there, one enters the house proper, into an ante-room. As the name indicates, domestic activities center on the hayat (Turkish : "life") which in warm months is furnished comfortably with a long divan, pillows and "kilims". There, work arrangements are made; guests are served afternoon tea while they catch up on the latest news and gossip; wool is cleaned and spun; and fruit and vegetables are spread to dry, strung and hung from the wall. The hayat is usually swept so no debris accumulates.

In a traditional courtyard, the kitchen is part of the house proper, but is entered from outside. Bathing is done in one corner of the kitchen that has a low sink "kurna" from which water is scooped out. The outhouse (toilet) is a small, free standing structure located not too far from the main house. In the course of its existence, the house expands by the addition of

new rooms, without any formal planning; or, a separate house is built in the courtyard to accommodate a married son and his family (Fig. 36). In the case of several married sons, the house of the oldest son is generally differentiated by its close proximity to the main (parents') house and its larger size in comparison to the houses of younger sons.

Among the significant activities which take place in all courtyards in summer months with varying intensities, are the following: (1) baking bread; (2) drying apricots, other fruits and vegetables; (3) jam-making on an outdoor hearth; (4) drying a mixture of flour, yoghurt, and tomato for "tarhana" soup; (5) boiling bulgur in large cauldrons on portable hearths, (6) preparing foods such as macaroni, tomato paste, wheat starch, and vinegar; (7) shearing, washing and cleaning wool; and (8) preparing plaster and "cutting" mudbricks. Once prepared, foodstuffs are stored in containers within a sub-basement storage room, in the kitchen/pantry, or in the "tandır house" (see below).¹¹ The residues from processing are swept up and given to animals, so that there would be no accumulation of organic debris which might serve an archaeological indicator of this use of space. On the other hand, traces of ash and fire-pits associated with cooking facilities would be visible.

b) Cooking Facilities (Figs. 36-37)

Although most households in YH today use modern gas stoves in their indoor kitchen, each courtyard has one or two hearths, one oven and a "tandır house" where general cooking, bread baking, and boiling water and milk are done. The location of these facilities does not follow a uniform plan; generally, the oven is near the entrance while the hearths are several meters from the house proper.

Tandır house

An indispensable feature of every compound, the tandır house is a one-room structure in which baking and cooking take place and food is stored. It is built as a separate room, measuring 20-25 sq m and is situated along the line of storage rooms very close to the house proper. Inside, a fireplace made of plastered mudbrick has a chimney and central pit which holds the fuel (chaff and dung cake); a flue is built into the floor 10-15 cm from the fire pit and plastered over. Over the firepit is built a U-shaped ring on which a circular ceramic tray or a convex metal plate is placed, depending on the type of flat bread being made (bazlama or gözleme). Bread dough is placed on the hot tray; while fuel (twigs and wood, not dung) are fed with one hand, the other hand turns breads with a spatula. Baked bread is quickly thrown onto a piece of clean cloth and covered. In one corner of the room are stored sacks of flour, sugar, home-made macaroni and dried vegetables as well as hay. Storage of staples until 30 years ago was in ceramic jars and wooden containers which have been replaced by plastic ones. The primary tools for flat bread making are a wooden trough, a board for dough, a ceramic or metal tray, a metal spatula and a goose wing to dust off the ceramic tray.

Oven

¹¹ Plastered pits for storage of cheese, onions, and potatoes have been recorded in the tandır house of Kiranharman village settled by ethnic Bulgarians.

In the courtyard an oven-hearth combination is usually used for baking bread loaves (as distinct from flat bread) and other foods. The domed oven is generally located near the entrance to the courtyard; in front of it is a small, raised platform. Built as a substantial mudbrick structure, the oven is about 1.5 m wide and 1 m high. A round or square opening in front is closed off with a sheet metal plate during baking. The baking chamber holds as many as six bread pans, each of which is placed on a tripod inside the oven. It is fired 1-2 times a week and the ashes are kept on the side, to be used later as fertilizer. Generally, the oven extends to form a square or rectangular hearth which is also built with mudbrick and plastered over. Used for cooking, boiling water and milk, it is fired with dung, and the ashes are added to the pile near the oven.

Portable Hearth

This is a square open fire-box, built of six mudbricks that are placed on three sides. Used to boil wheat, vegetables, and fruits which are processed and put up for winter, these hearths are set up in the same general area each time and dismantled when the cooking process is over, leaving behind a pile of blackened stones and an ash pit.

c) Storage Rooms (Figs. 36-37)

Within the courtyard, a complex of rooms built in a linear plan are used to store cereals, hay, dung cakes, animal feed. Processed foods, on the other hand, are generally kept in the kitchen/pantry or in one corner of the tandir house. Other items for which there is no roofed space are kept in plastic-covered piles (sugar beet pulp, ash, stalks, fertilizer, mudbricks) within or immediately outside the courtyard. I noted, specifically, in a herding household the milk by-products (butter, cheese, cream) take up most of the available space in the tandir house.

The evidence from YH house plans shows that the size of storage spaces range from ca. 50 to 250 sq m, the types and volume of stored items varying according to the primary subsistence of the household (herding or agriculture), and the size of the operation (income level). In this village, the income of a herding household with a flock of 125 sheep is roughly equal to that of an agricultural household with 30 ha of land. The storage area of the former is used primarily for hay and animal feed. In the courtyard illustrated here, storage rooms measure ca. 75 sq m (Fig. 37 Rms D-F), and will hold 31 tons of barley, sheep feed, lamb feed and hay. The storage spaces of an agricultural family are similar in size, storing 33 tons of cereals, 1/2 ton of cow feed and hay.

The single feature that best distinguishes the herder's courtyard from the agricultural one is the structural organization of (a) sheepfolds and (b) cereal storage. An agricultural family's cereal storage is partitioned with moveable wooden slats into four sections to hold two types of wheat, barley and cow feed. Built on stone foundations, the mudbrick structure is plastered on both exterior and interior; each partition forms a bin which is slightly elevated from the floor to protect the cereal from the elements. Next to the cereal storage room is the hay barn, followed by a cow shed in which dung cakes are piled up for the winter. (Dung cakes are stored in sheepfolds in herding courtyards.) In both types of courtyards, there are a number of open sheds for storage of melons and onions and other perishable foods. Distribution of these sheds within the courtyard is random, and they were presumably built as needed. The cereal storage rooms store traditional

farming utensils which are still occasionally used (mill stones, wooden trough, wooden sieves, metal scythe, fork).

In a herding courtyard (Fig. 37), the layout of the sheepfolds and the associated deposits clearly reflect the types of herding strategies of YH shepherds who practice daily grazing as opposed to transhumance, and the intensity of herding relative to farming. (Transhumant herders' sheepfolds are outside the village). Activities take place in roofed and unroofed spaces: in winter, sheep and lambs are kept in the "ahır" (roofed pen); in summer the whole flock stays in the "ağıl" (unroofed area) in front of the ahır, except for the goats which are separately kept in a fenced space nearby.

d) Animal pens (Fig. 37)

In the herding courtyard mapped as part of this study, three functionally different types of animal pens were found. The roofed sheep pen or ahır is partitioned by low mudbrick walls with one area for milking sheep and a second for non-milking (without lambs) and infertile sheep. The rationale behind the division is to facilitate the ease with which sheep feed their lambs and to prevent the lambs from getting mixed in with the other sheep. An unroofed sheep pen or ağıl is located in front of the main pen; here the flock is fed in summer from wooden troughs which are taken outside. A second ağıl lies adjacent to the roofed "ahır" and close to the house where the flock is sheared and milked in summer months. Each ağıl is defined by a picket fence or stone enclosure, separating the house and garden from sheepfolds and storage complex.

While the ağıl is a repository of fertilizer which is piled up every two weeks and taken to the fields in summer, the ahır stores sheep and goat dropping for six months during winter while providing warmth for the animals. At the beginning of summer a layer of 15-25 cm thick dung ("kerme") is shovelled out of the ahır and dried for fuel; if this task is not done annually, the dung deposit gets too high for the animals to go in and out, and the acid endangers their health. The kerme is piled up either in a separate storage room or to one side of the ahır.

Only a few artifacts are associated with these areas, including shearing scissors, heavy ropes, and portable and fixed feeding troughs; and they are kept in a storage room near the sheepfold. Herding courtyards are also marked by piles of skull and femur bones which were residues from slaughtered sheep that were diseased and left inside the courtyard for the sheep dogs to eat.

3) SUMMARY

As this case study from the modern village of Yassıhöyük demonstrates, courtyards contain much information regarding the structural organization of subsistence activities, food production and consumption, and related artifacts. While the archaeological record recovered through excavation at Gordion contains tangible residues of the ancient economy, the ethnographic data attempts to provide, by analogy, the broader cultural context of how and why the material remains are linked to choices made by the contemporary farmers in the region.

CONCLUSIONS

Mary M. Voigt

A sustained multi-disciplinary program of research at Gordion is substantially changing our picture of the political and economic role of the site after the Early Phrygian destruction. It is now clear that the fire that laid waste to much of the palace quarter did not disrupt the Phrygian political system but instead led to an emphatic demonstration of the elite's power and ability to command a large labor force. Almost immediately after the fire the Phrygian leaders were able to mobilize their people and rebuild their capital in a spectacular way, elevating both the palace quarter to the east and a residential area to the west on high artificial mounds. The fortification system was revamped and improved, and the settlement itself grew to its greatest size.

While the Phrygian state lost power during the seventh century, and Gordion was eventually conquered by the Achaemenids, the archaeological evidence suggests that political decline was not linked to a decline in trade and economic prosperity. Major questions that remain to be answered by detailed study of ceramic and non-ceramic finds and their distribution include details of exchange systems; the nature of Lydian influence or control over the Phrygians; the extent to which Persian ways were adopted by the indigenous population at Gordion; and the possible existence of foreign enclaves within the city during the period of Achaemenid rule.

The Hellenistic and Roman occupations at the site have been exposed over large areas of the site, but remain poorly known. Especially intriguing is the Galatian settlement, which has not been systematically studied. The presence of *in situ* deposits from houses that vary in size and contents should eventually make it possible to reconstruct in some detail both the economy and social system of these immigrants. Perhaps most significant from the point of view of ongoing archaeological work in Turkey is the fact that new research at Gordion has demonstrated that relatively small-scale, stratigraphically-controlled excavation can lead to a reinterpretation and revival of the irreplaceable and irreproducible large-scale research projects conducted by previous generations of scholars.

ACKNOWLEDGMENTS

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and Technology's 20 MW research reactor. All maps and plans in this article were prepared by Sondra Jarvis; small finds and pottery were inked by Heather Harvey.

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Table 1: THE YASSIHÖYÜK STRATIGRAPHIC SEQUENCE (YHSS) PHASES 6-1: 1988-1995

Abbreviations: Upper Trench (UT) and Lower Trench (LT) Soundings in the Main Excavation Area; Northwest Quadrant (NWQ); Lower Town Areas A (LTA) and B (LTB); Outer Town (OT)

<u>Phase</u>	<u>Tentative Date</u>	<u>Period Name</u>	<u>Nature of Remains</u>
1	?	Medieval	UTS, NWQ: Domestic structures and ovens
2	1st-3rd c AD	Roman	NWQ: Buildings with street; cemetery in LT A-B.
3A	?-189 BC	L. Hellenistic/Galatian	UTS: Domestic structures destroyed by fire; NWQ: burned monumental building and domestic structures; LT A-B cemetery
3B	330 BC-?	Early Hellenistic	NWQ: Monumental wall, domestic structures and trash deposits; Op 17, domestic structures
4	c 550-330 BC	Late Phrygian	UTS: remodelled YHSS 5 buildings; pithouses, industrial features; Op 39: Monumental building; NWQ and Op 17: domestic structures; LTA-B: domestic structures; OT: domestic structures
5	c 700-550 BC	Middle Phrygian	UTS: Formal building with ashlar masonry; NWQ and Op 17: domestic structures with heavy stone foundations; LTA: monumental structures on terrace; LTB: domestic structures; OT: pithouse
6 2	?-700 BC	Early Phrygian	UTS: Anteroom of Terrace Building of Palace Quarter; Op 17: hearth and outside surface

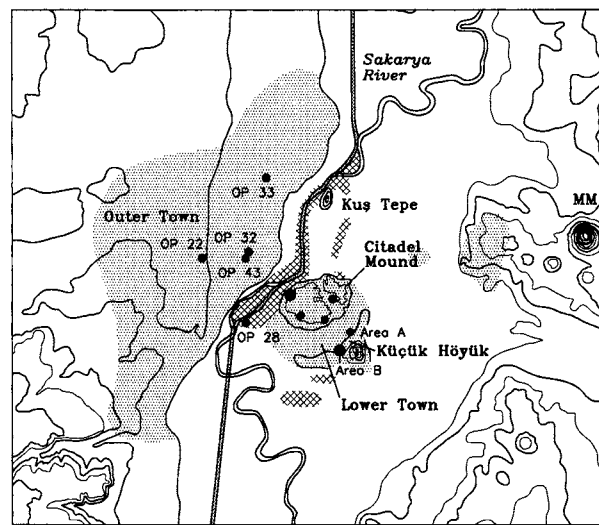
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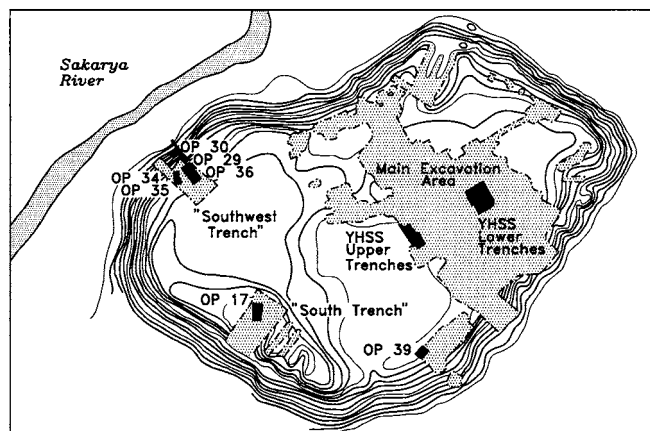


YASSIHÖYÜK/GORDION 1995

- Settlement Areas Based on Surface Remains
- ▨ Settlement Areas Based on Cores and River Bank Cuts
- Excavation Areas 1993 – 1995
- Sakarya River Course 1950
- Modern Dredged River Course

0 250 500 M
S. Jarvis 1996

Fig. 1. Map of Gordion region showing topographic zones of the ancient site.



YASSIHÖYÜK/GORDION 1995

- Excavated Areas 1900–1972
- Excavated Areas 1988 – 1995

0 50 100 M
S. Jarvis 1996

Fig. 2. Plan of the Citadel Mound showing excavated areas 1900-1995.

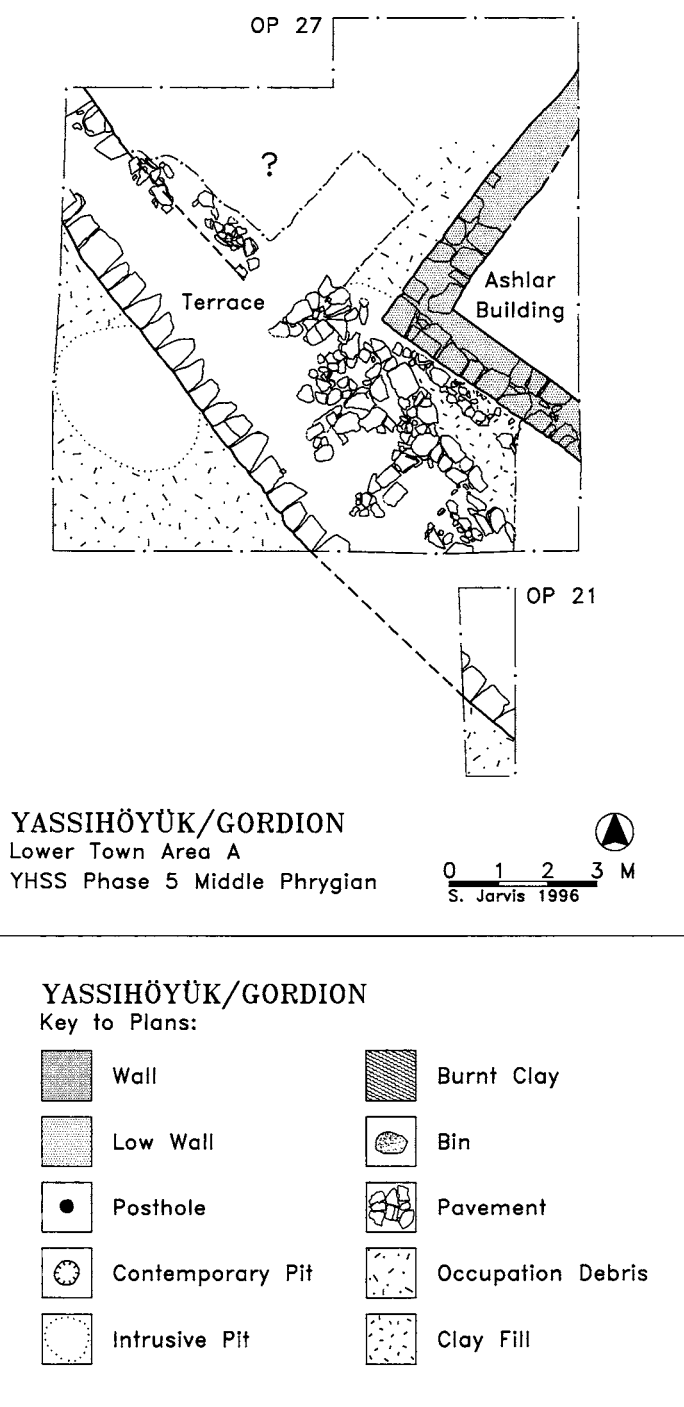


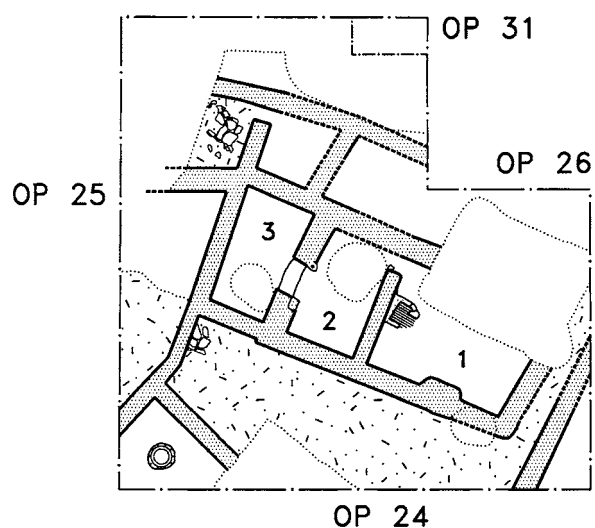
Fig. 3. Middle Phrygian/YHSS 5 terrace and building in Lower Town Area A.



Fig. 4. Middle Phrygian/YHSS 5 structures in Lower Town Area A. To the left is the badly robbed terrace wall, to the right an ashlar building.



Fig. 5. Northwest end of the Middle Phrygian/YHSS 5 wall in Area A. To the right, the rubble packing beneath the wall extends to a higher level forming a terrace; to the left, the wall has been robbed, its impression preserved by a series of hard-packed exterior surfaces.



YASSIHÖYÜK/GORDION

Lower Town Area B

YHSS Phase 5 Middle Phrygian

Latest Building Level

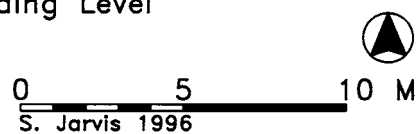


Fig. 6. Middle Phrygian/YHSS 5 houses in Lower Town Area B.



Fig. 7. Middle Phrygian/YHSS 5 house in Area B. In the foreground is the main room with a hearth; in the background is a second room with poorly preserved clay floor.

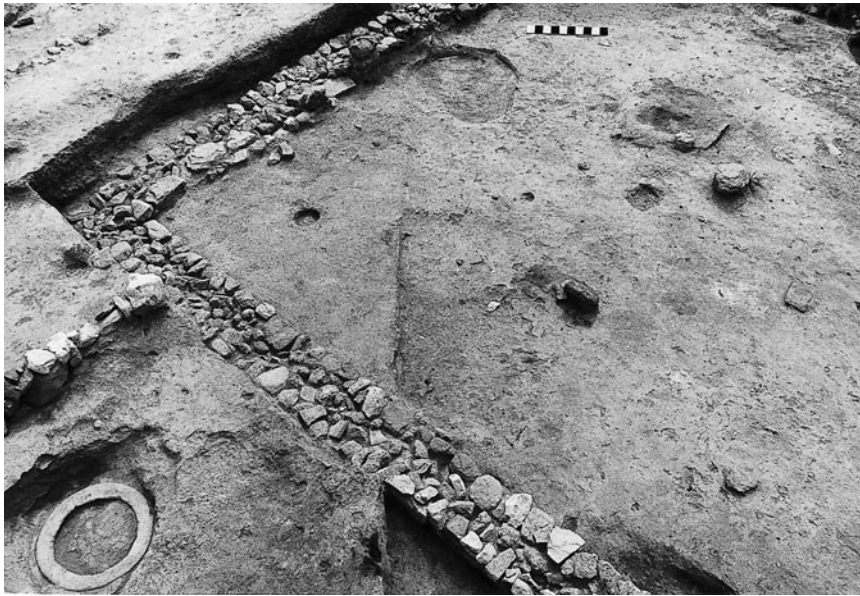
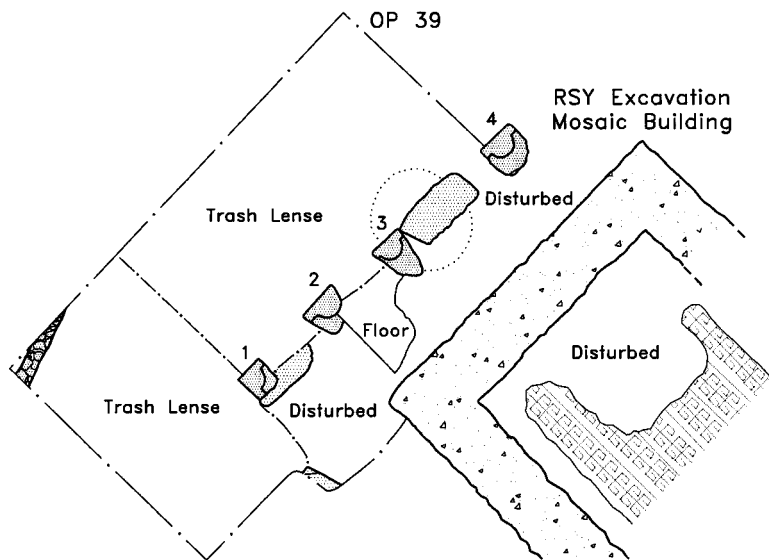


Fig. 8. Late Phrygian/YHSS 4 house in Lower Town Area B (Operation 23) cut through Middle Phrygian/YHSS 5 building with storage jar set in its floor.



YASSIHÖYÜK/GORDION

YHSS Phase 4 Late Phrygian

- Rubble Foundations of Mosaic Building
- Tall Blocks with Semi-engaged Column Bases
- Flat Slabs Set at Base of Blocks
- Mosaic Floor

0 1 2 3 M
S. Jarvis 1996

Fig. 9. Late Phrygian/YHSS 4 structure ("Mosaic Building") on the Eastern Citadel Mound.

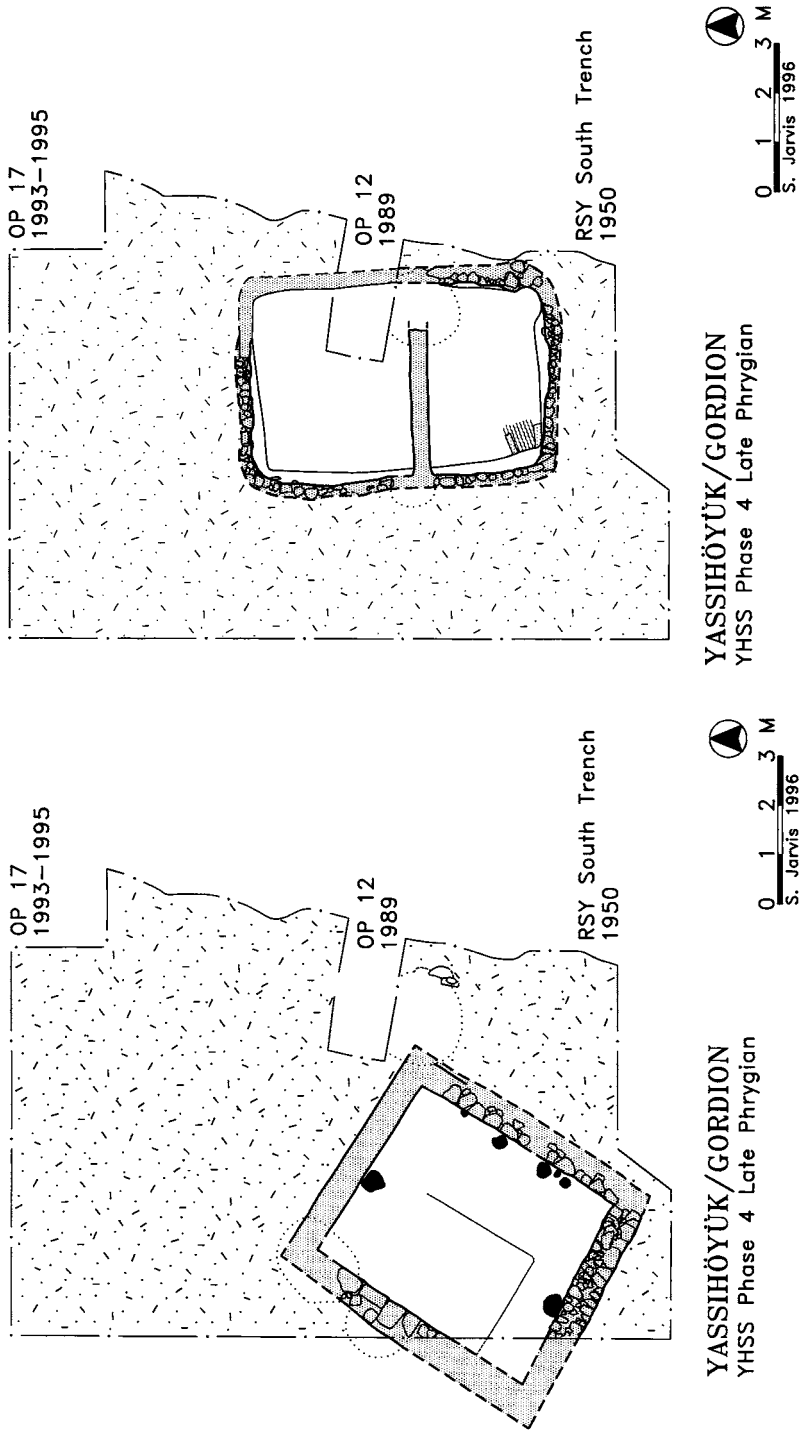


Fig. 11. Western Citadel Mound, Late Phrygian/YHSS 4 pithouse in Operation 17.

Fig. 10. Western Citadel Mound, earliest Late Phrygian/YHSS 4 house in Operation 17.

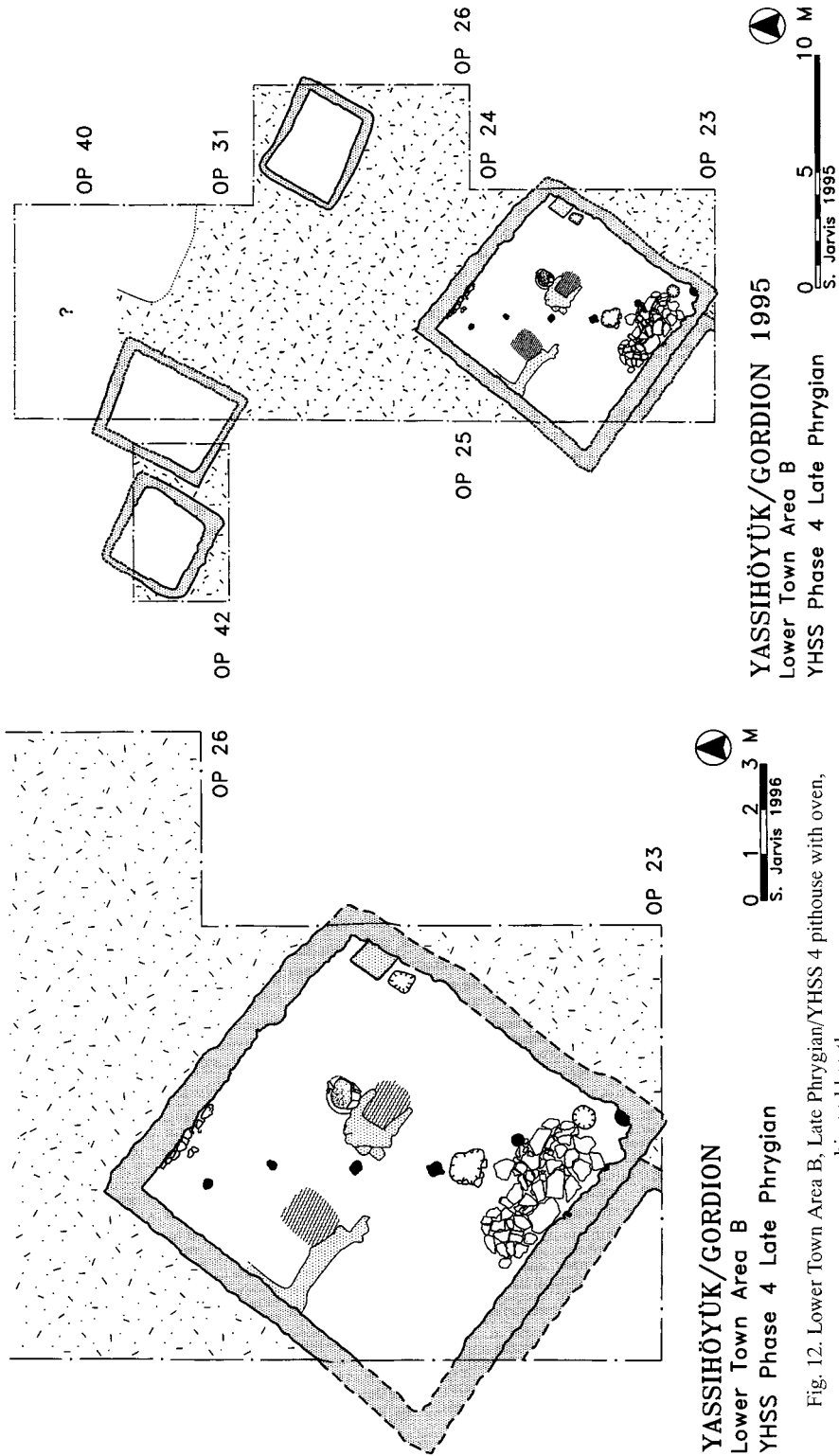




Fig. 14. Late Phrygian/YHSS 4 pithouse in Lower Town Area B (Operation 26) with packed mud walls on stone foundations.

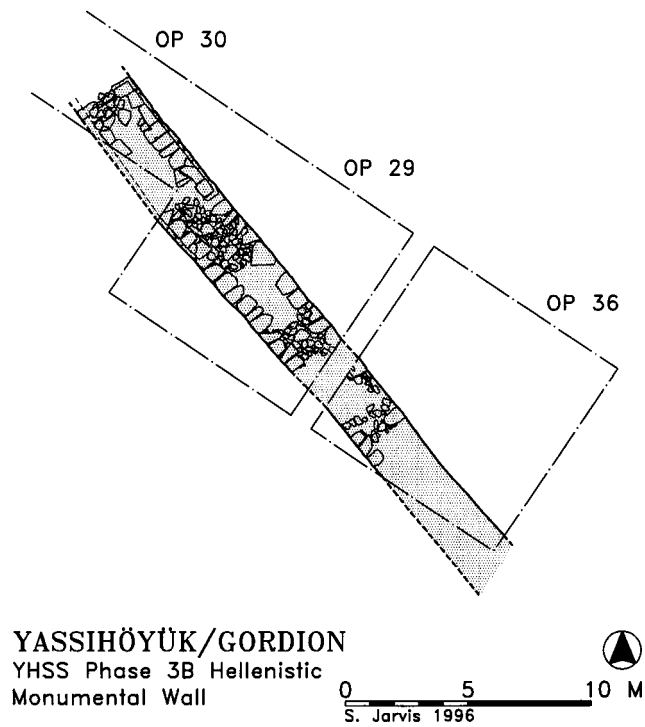
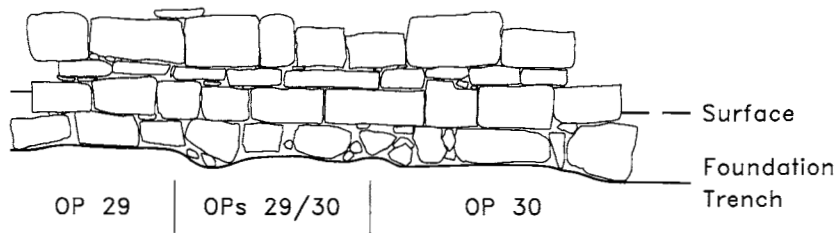


Fig. 15. Early Hellenistic/YHSS 3B monumental wall on the Northwest Quadrant of the Citadel Mound.



YASSIHÖYÜK/GORDION
YHSS Phase 3B Hellenistic
Elevation of Monumental Wall

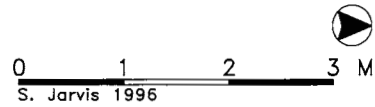
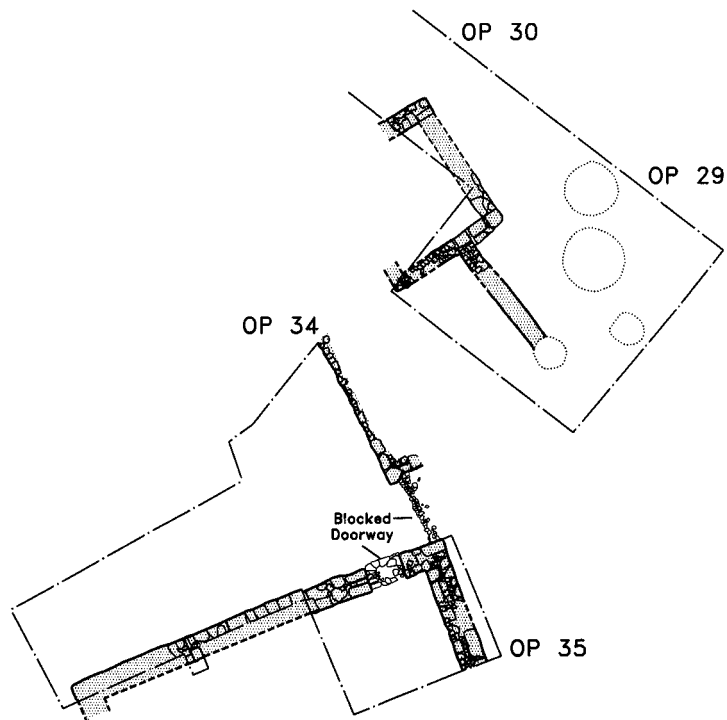


Fig. 16. Early Hellenistic/YHSS 3B monumental wall, elevation.



YASSIHÖYÜK/GORDION
YHSS Phase 3A Galatian

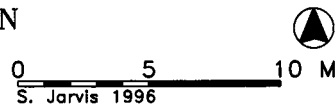


Fig. 17. Later Hellenistic (Galatian)/YHSS 3A structures on the Northwest Quadrant of the Citadel Mound. The structure to the northeast contains household equipment; that to the south is constructed of ashlar blocks, and had the remains of a tile roof on its floor.



Fig. 18. Galatian/YHSS 3A bone deposit in the Lower Town. The skull of a young woman with the first vertebra intact rests on a dog skull, dog long bones, and a human pelvic bone.



Fig. 19. Galatian/YHSS 3A "bone pile" in the Lower Town, consisting primarily of domesticated animals associated with a few human bones.

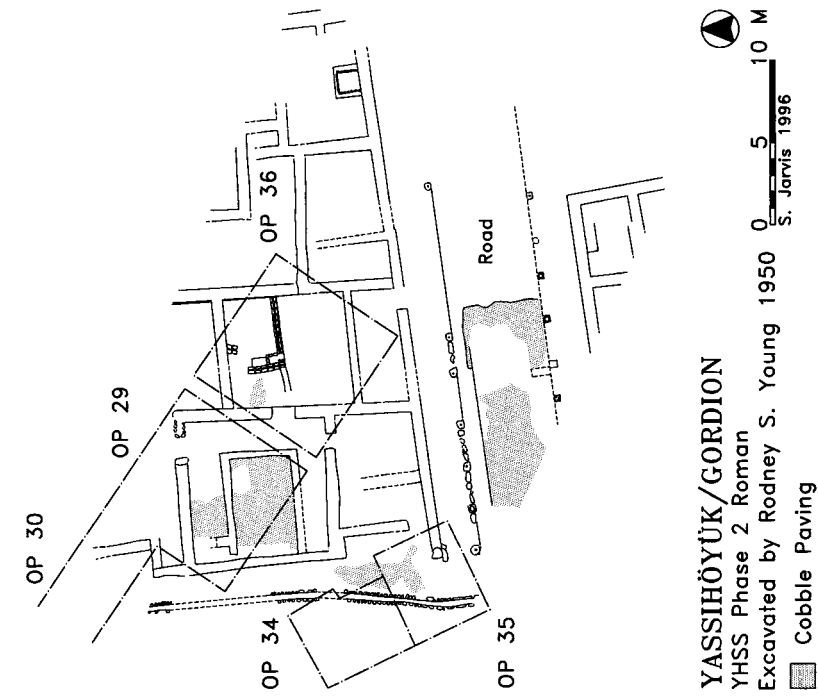


Fig. 21. Roman/YHSS 2 buildings excavated by Rodney Young in 1950. The structures in Figure 20 represent an earlier phase of construction with some differences in architectural details.

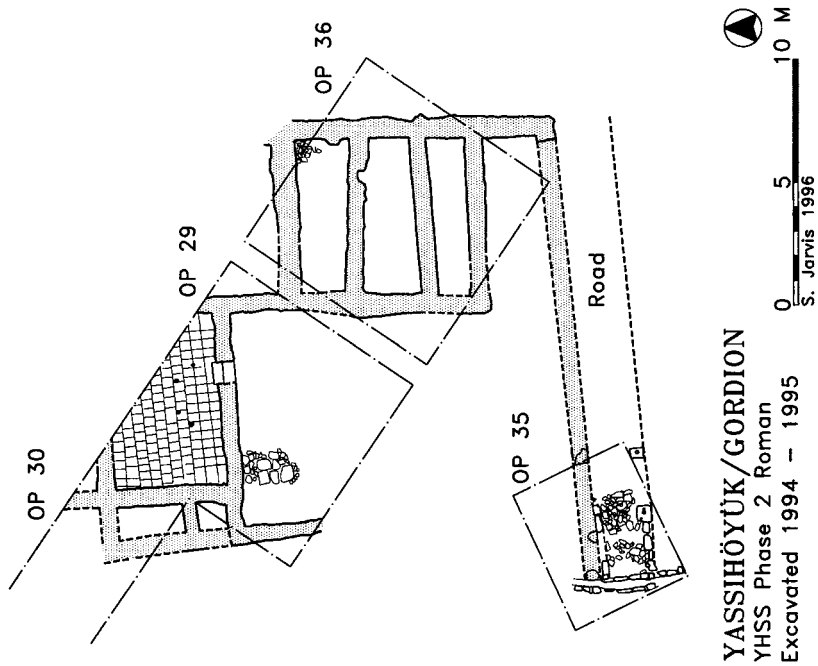


Fig. 20. Roman/YHSS 2 buildings on the Northwest Quadrant of the Citadel Mound excavated 1994-1995. The building to the north has a floor made of mudbricks set white lime plaster.



Fig. 22. Gray ware "beer mug" from Operation 22 pithouse, initial Middle Phrygian/YHSS 5?; (YHSF 93-109).



Fig. 23. Lydions with dark brown or black painted surfaces (left: YHSF 95-147, right: 95-164).

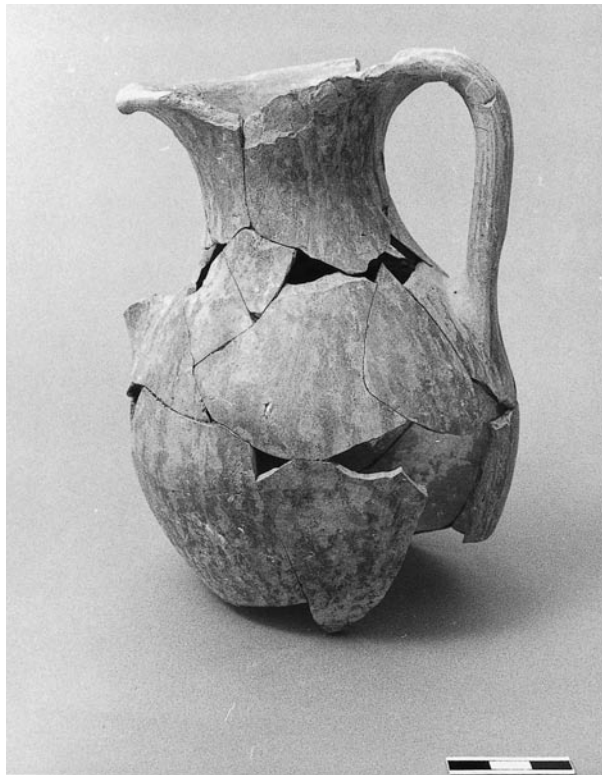


Fig. 24. Two handled jar in West Iranian found in Outer Town, Late Phrygian/YHSS 4 (YH 38247).



Fig. 25. Painted bowl of type found in Galatian/YHSS 3A monumental building.



Fig. 26. Fragmentary Middle Wild Goat II lid; ca. 625-600 BC (YHSF 95-93).



Fig. 27. Kotyle sherd of HoB Ware, Lydian or East Greek; ca. 600-575 BC (YHSF 95-51).

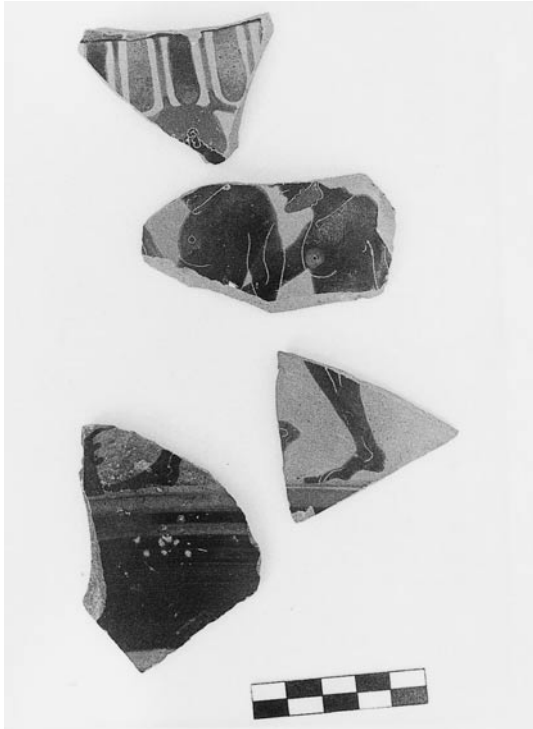


Fig. 28. Fragments of Attic black-figure column-krater by Lydos, with running men; c. 555-540 BC. Top to bottom: P 4653a (uncertain context, but probably the same as the next); P 4653b (northwest bastion area); YH 51501 (1995 excavation of 6th-century BC deposit in Op. 17); P 5415 (1950 excavation of same deposit).

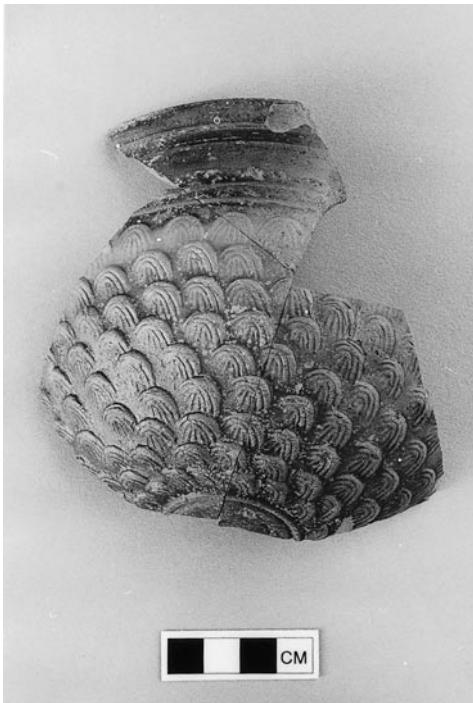


Fig. 29. Fragmentary Megarian bowl from Northwest Quadrant YHSS 3A context; no later than 189 BC (YHSF 94-163).

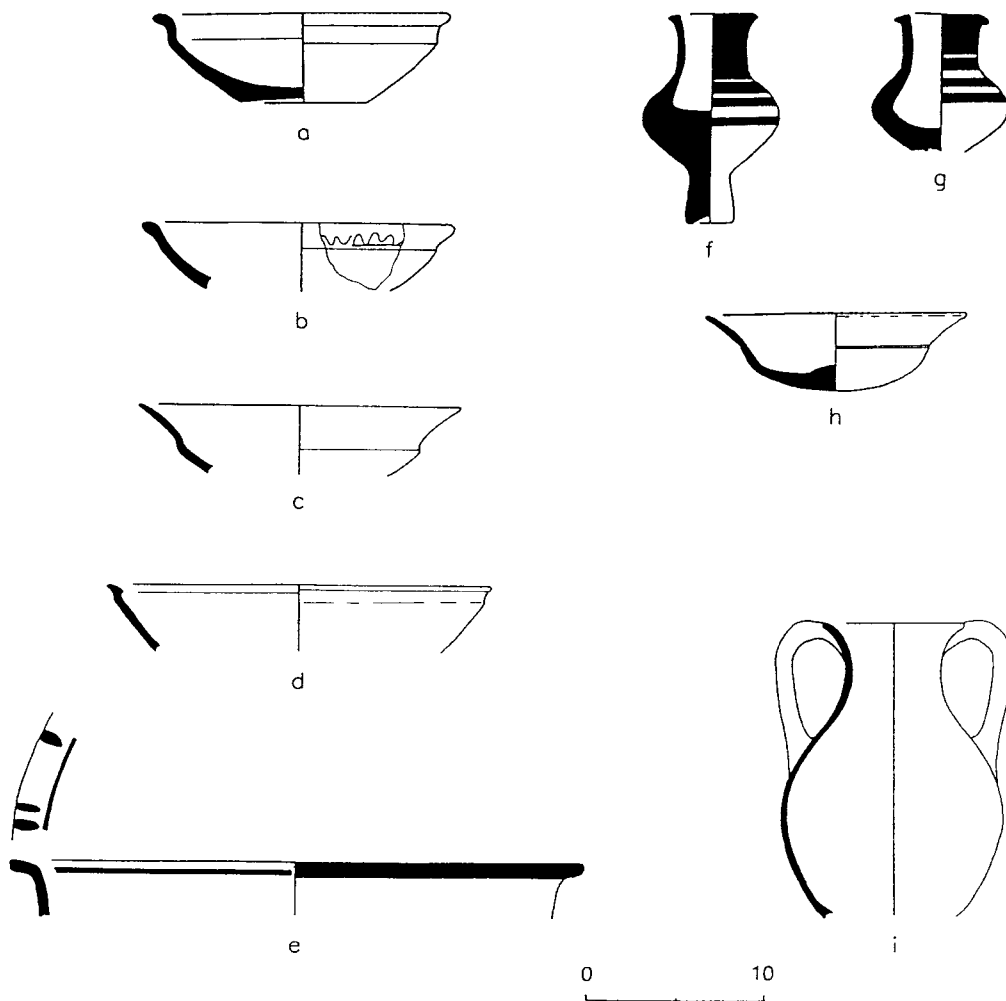


Fig. 30. Late Phrygian/YHSS 4 pottery from various contexts.

- a. Buff medium-fine ware (YHSF 95-64).
- b. Gray medium-fine smoothed ware with "squiggle" burnish (YH 52459).
- c. Gray medium-fine smoothed ware (YH 40647).
- d. Gray medium-fine burnished ware (YH 53664).
- e. Buff medium-fine smoothed ware with red paint (YH 42121); from Outer Town.
- f. Buff fine, self-slip with orange-red paint (YHSF 93-92; lydion from Lower Town pithouse).
- g. Buff fine, self-slip with streaky brown paint (YHSF 93-105); lydion from Lower Town pithouse.
- h. Black medium-fine, pattern burnished (YHSF 94-337); from Lower Town pithouse.
- i. Buff medium-fine, self-slipped with partial burnish consisting of vertical strokes (YHSF 94-337); from Outer Town.

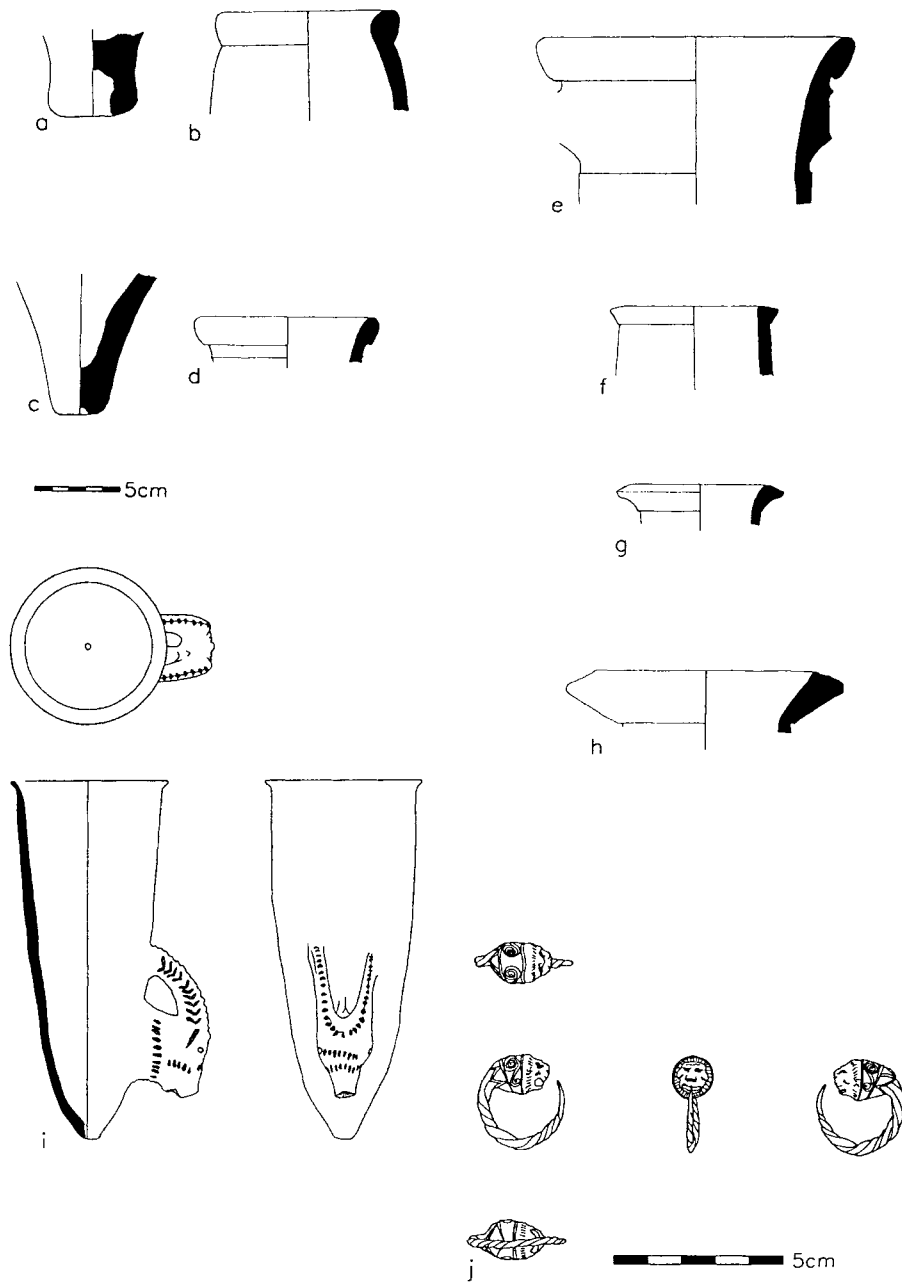


Fig. 31.

- a. Chian amphora toe (RSY excavations).
- b. Chian amphora rim (RSY excavations).
- c. Lesbian amphora toe (YH 49181).
- d. Lesbian amphora rim (Yh 41039).
- e. Samian/Milesian amphora rim (YH 41039).
- f. North Greek amphora rim (YH 53302).
- g. North Greek amphora rim (YH 52320).
- h. Solokha I amphora rim (YH 43838).
- i. Gray medium-fine burnished ware rhyton, Early Hellenistic/YHSS 3B (YHSF 93-40).
- j. Gold earring (one of pair) from Galatian/YHSS 3A burial in Lower Town (YHSF 94-24).

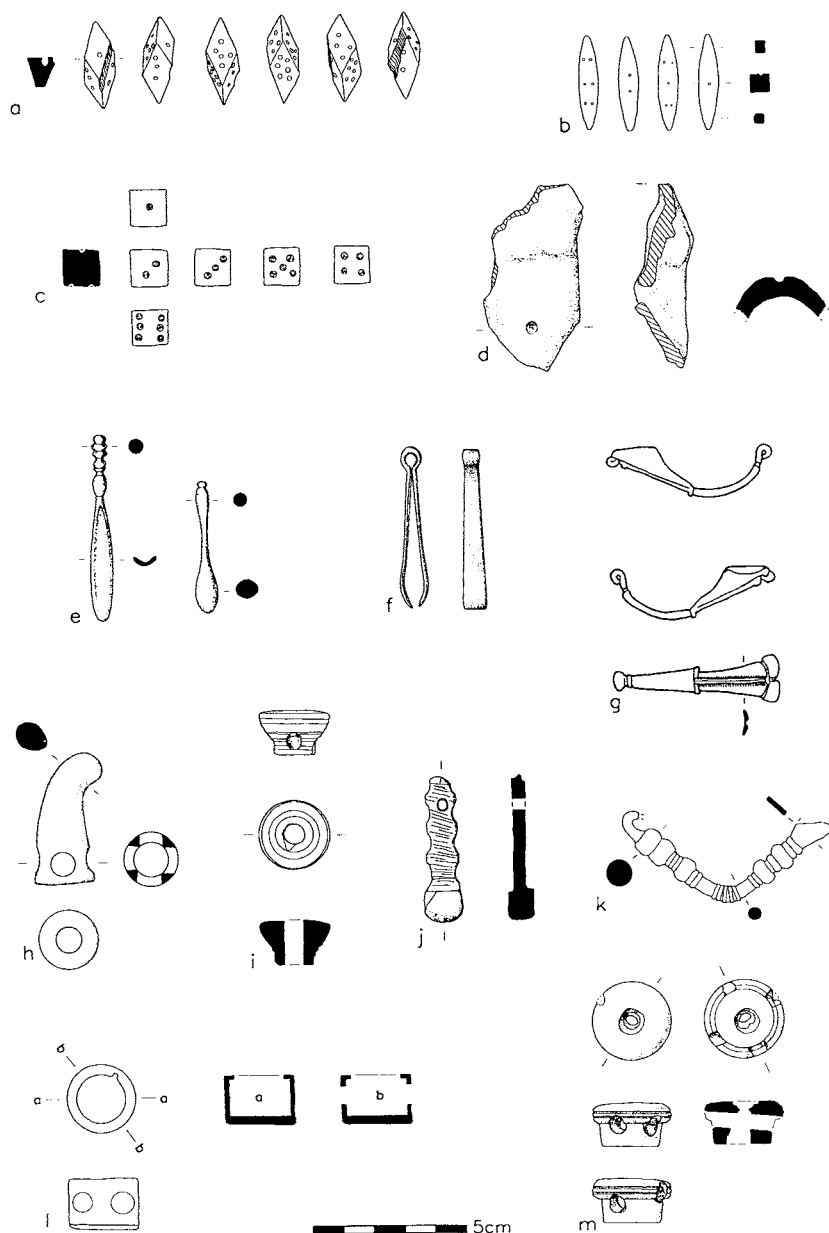
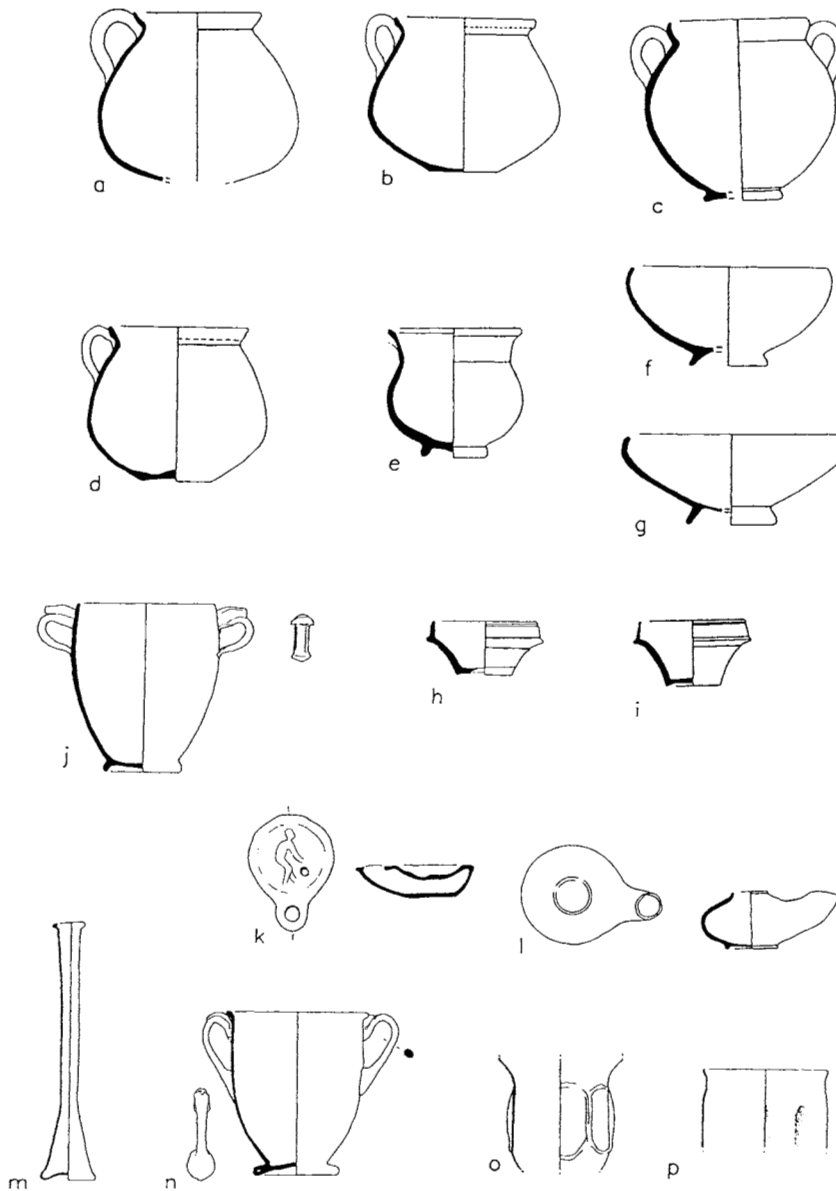


Fig. 32.

- a. Early Hellenistic/YHSS 3 bone/ivory die (YHSF 94-66).
- b. Early Hellenistic/YHSS 3B bone die (YHSF 93-18).
- c. Early Hellenistic/YHSS 3B bone/ivory die (YHSF 96-238).
- d. Roman/YHSS 2 terracotta figurine fragment (YHSF 94-6).
- e. Roman/YHSS 2 bronze toilet implements (YHSS 94-79).
- f. Late Phrygian/YHSS 4 bronze tweezers (YHSF 94-277).
- g. Roman/YHSS 2 bronze fibula (YHSF 94-92).
- h. Late Phrygian/YHSS 4 antler harness ornament (YHSF 94-217).
- i. Middle Phrygian/YHSS 5 antler harness ornament (YHSF 94-183).
- j. Late Phrygian/YHSS 4 bone ornament (YHSF 94-82).
- k. Late Phrygian/YHSS 4 bronze fibula (YHSF 94-189).
- l. Middle Phrygian/YHSS 5 bronze harness ornament (one of a set of four) (YHSF 96-152).
- m. Middle Phrygian/YHSS 5 antler harness ornament (YHSF 96-100).



5cm

Fig. 33.

- | | |
|---|---|
| a. Roman/YHSS 2 buff fine ware with red-orange paint (YHSF 94-323). | h. Roman/YHSS 2 buff fine ware (YHSF 96-42). |
| b. Roman/YHSS 2 buff fine ware (YHSF 94-132). | i. Roman/YHSS 2 red-glazed buff fine ware (YHSF 94-2). |
| c. Roman/YHSS 2 buff fine ware with red-orange paint (YHSF 94-325). | j. Roman/YHSS 2 red-glazed buff fine ware (YHSF 94-71). |
| d. Roman/YHSS 2 buff fine ware (94-324). | k. Roman/YHSS 2 red-glazed lamp (YHSF 94-195). |
| e. Roman/YHSS 2 fine ware (YH 38236). | l. Roman/YHSS 2 red-glazed lamp (94-64). |
| f. Roman/YHSS 2 buff fine ware with red-orange paint (YHSF 94-29). | m. Roman/YHSS 2 glass vessel (YHSF 94-131). |
| g. Roman/YHSS 2 gray medium-fine ware (YHSF 94-5). | n. Roman/YHSS 2 glass vessel (YH 48336). |
| | o. Roman/YHSS 2 glass vessel (YHSF 94-152). |
| | p. Roman/YHSS 2 glass vessel (YH 54350). |

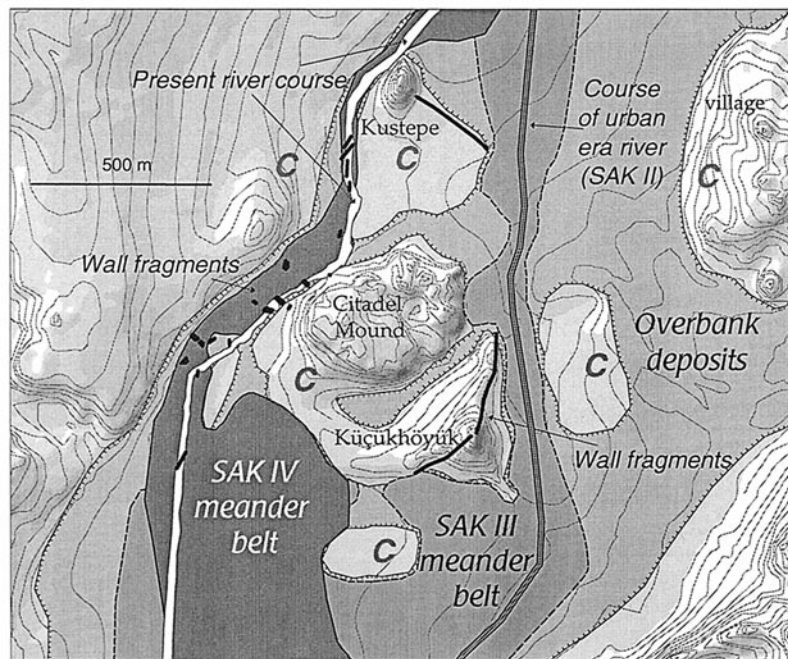


Fig. 34. Topographic representation of Gordion on the Sakarya plain. Nominal contour interval is 1m. Areas marked "C" contain cultural material at the surface. Overbank deposits from SAK III and SAK IV cover much cultural material.

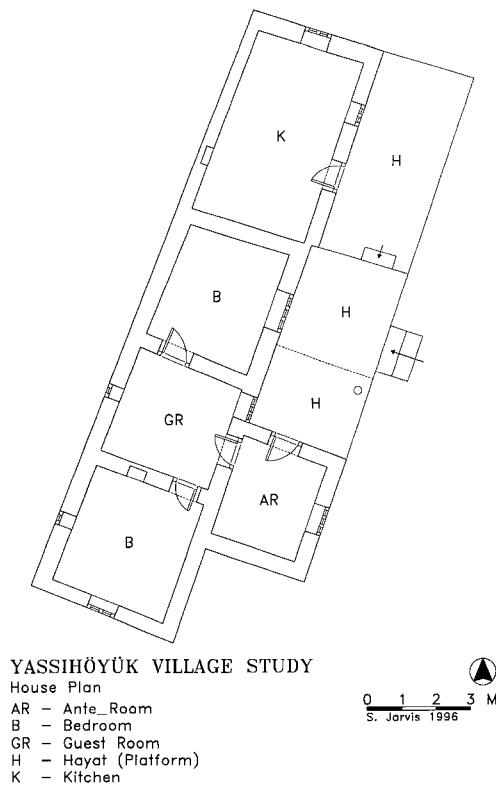


Fig. 35. Village house.

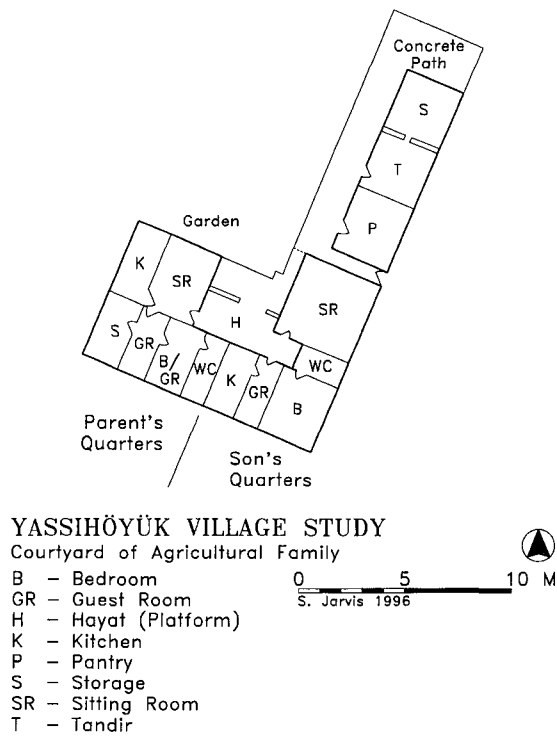


Fig. 36. Compound of an agricultural family.

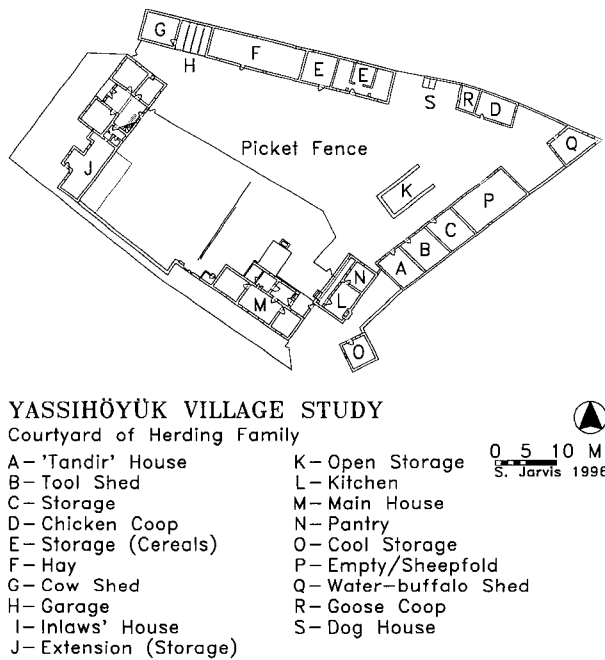


Fig. 37. Compound of a herding family.

EXCAVATIONS AT TİTRİS HÖYÜK IN SOUTHEASTERN TURKEY: A Preliminary Report of the 1996 Season

Timothy Matney, Guillermo Algaze, and Holly Pittman

I. INTRODUCTION

The sixth season of excavation at the Early Bronze Age (hereafter 'EBA') capital of Titris Höyük in the Upper Euphrates basin of southeastern Anatolia was conducted from July 17 to August 24, 1996.¹ Previous work at the site has shown that Titris was a small urban center that flourished along an important trade route focused on the historical Euphrates river crossing point at Samsat during the Middle (ca. 2600/2500-2400/2300 BC) and Late (ca. 2300-2200/2100 BC) phases of the EBA (Algaze et al. 1992, 1995, 1996; Algaze and Mısır 1994, 1995; and Matney and Algaze 1995). At its apogee, Titris was composed of a central acropolis area (Area 1) surrounded by a much more extensive lower city, about 35 hectares in extent, which is divided into a Lower Town (Areas 2-3) adjacent to the acropolis area and an Outer Town (Area 4) to the north. Surrounding these mounded areas are several flat scatters of plowed-out walls and artifacts which apparently represent extramural "suburbs" and specialized activity areas (Fig. 1). These scattered areas add a further 8 ha to the extent of the site in the Mid-Late EBA. The morphology of the site and the sequence of deposition in each of its morphological areas has been discussed in detail elsewhere (Matney and Algaze 1995: 35-36).

The 1996 season of work at Titris represents our latest effort to obtain representative exposures of domestic quarters and economies within the EBA ancient city, a goal that has informed our research at the site since 1994. Working towards this objective, in 1994 and 1995 we exposed approximately 1,175 square meters of domestic architecture dating to the Late EBA in the eastern end of the Outer Town sector of the site. This architecture consisted of at least four large

¹ The 1996 season was co-directed by Dr. Guillermo Algaze (University of California, San Diego) and Dr. Timothy Matney (Whitman College). Staff archaeologists included: Ms. Gülay Dinçkan (Istanbul University), Dr. David Dorren, Mr. Eric Rupley (University of Michigan), and Mr. Duncan Schlee (Cambridge Archaeological Unit). Archaeological students in training included Ms. Kaisa Akkerman (University of Helsinki), Mr. Troy Eggleston (University of California, San Diego), and Ms. Vanessa Spinazola (Whitman College). Mr. John Kelly (University of California, Berkeley) served as expedition architect. Ms. Dilek Erdal (Ankara University) served as Physical Anthropologist. Archaeological conservation was supervised by Ms. Katharine Untch (Virginia Museum of Fine Arts), helped by Ms. Tania Collas (Conservation Analytical Laboratory, Smithsonian Institution) and by Ms. Katherine May (Buffalo State College), a conservator in training. Cigdem Köksal (Istanbul University) served as archaeological illustrator. As always, help in all aspects of our research was provided by Mr. Adnan Mısır, director of Şanlıurfa Museum. Mr. Necip Çay (Konya Museum) ably served as the representative of the Ministry of Culture.

multi-roomed houses aligned along a central street. The exposed architecture showed extensive evidence for urban planning in its regularity, plan, and constructional details (Matney and Algaze 1995: 40-42, fig. 10). In 1996, seeking to document differences between domestic quarters and activities across the settlement, we focused our efforts on domestic installations situated in the western periphery of the Lower Town sector of the ancient city, some 900 meters away from the existing Outer Town exposures (Fig. 1).

The placement of our 1996 exposures was guided by the existing remote sensing (magnetometry) maps of the site (Matney and Algaze 1995: figs. 3 and 13). The maps suggested that a large and, apparently, largely undisturbed area of domestic structures delimited by streets existed at the western end of the Lower Town (Matney and Algaze 1995: fig. 13 "c"). A single trench (10 x 10 m) was excavated to test this area in 1995 (Trench 34/12; see Algaze et al. 1996: 134-135). As predicted by the magnetometry, the structures exposed by this initial trench turned out to be domestic in character. Since the associated ceramics indicated that they were contemporary with the Late EBA houses already exposed in the Outer Town, during 1996 additional work took place in the area surrounding the initial trench. By the end of the season, seven further complete trenches and small portions of seven other trenches had been opened, accounting for a single total exposure of 1,000 square meters of a Late EBA domestic neighborhood (Trenches 34/10-14, 35/10-14, 36/10, and 36/12) (Figs. 2, 3, 4). What follows is a preliminary description of the most important architectural, artifactual, and mortuary data recovered from that neighborhood, and an initial attempt to contrast and compare the two widely separated Late EBA domestic quarters that, as a result of our 1996 work, have now been exposed at the site.²

II. LATE EBA DOMESTIC BUILDINGS IN THE LOWER TOWN

General Description

The excavations in the western lobe of the Lower Town in 1996 recovered coherent rectilinear domestic houses consisting of stone wall footings which once supported a now-eroded mudbrick superstructure. The foundations were a combination of undressed fieldstone with some well-masoned limestone blocks. In at least one case, a pottery course was seen running through the interior of a wall, between the wall footing and the first layer of mudbrick, presumably as a leveling course. In some parts the stone foundations and footings had been robbed out. However, the outlines of robber's trenches could still be traced, since they were marked by heavy concentrations of limestone chips. Otherwise, the bulk of the wall foundations were mostly intact, preserved in places to nearly a meter. In a number of rooms layers of artifacts, including complete or nearly complete small ceramic vessels, were found stratified over mudbrick collapse which, in turn, sat over well preserved floors. This distribution suggests that at least some of

² Financial support for the 1996 excavation season was provided by grants from the Committee for Research of the University of California, San Diego (to Guillermo Algaze) and The National Geographic Society (to Timothy Matney). Conservation services at the site were funded by a grant from The Samuel H. Kress Foundation (New York).

the buildings may have supported a second story. Alternately, it is also possible that portions of the roofs of the houses were actively being used as work space.

Floors in the buildings recovered in the Lower Town were of packed earth with occasional mud and lime plastered areas which, given their number and location, were probably used as domestic preparation surfaces. These plastered patches were usually round, between 1.0 and 1.5 meters in diameter, and slightly convex. The plaster was usually set above a course of small stones or pebbles and often consisted of multiple layers, probably formed through repeated replasterings. The surfaces had been blackened in places, either through the accumulation of organic deposits, or through burning, and then replastered. Hard packed earthen floors were also identified through the presence of in-situ objects and flat-lying potsherds. Rooms near house entrances commonly had a carefully-paved floor consisting of large flat flagstones. Other surfaces — mostly courtyards exposed to the elements — were irregularly paved with large flat, undressed fieldstones and large flat-lying potsherds.

During the Late EBA, the western periphery of the Lower Town excavated in 1996 sloped gently down to the west and north. To compensate for this gradient, EBA builders in the Lower Town employed a terracing system similar to that found in the Outer Town (Matney and Algaze 1995: 40-42). This consisted of a series of terraces built behind retaining walls which, in turn, also served as the major load-bearing walls for the mudbrick buildings. These terrace steps can be seen in the use of "double walls" (i.e., two wall abutting lengthwise both with good exterior and interior faces) which run parallel to the slope contours. Additionally, from the magnetometry map, it is possible to observe that the paved roads at the edges of the Lower Town (below) followed the contours of the ancient mound, probably serving to delineate further terracing steps.

Streets

A major feature of the domestic neighborhood excavated in 1996 was a north-south street running along the eastern edge of the excavated area. The remote sensing map of the Lower Town (Matney and Algaze 1995: fig. 13) shows that the portion of the street sampled by our excavations is part of a much wider street system that crisscrosses the Lower Town. Within our exposures, the street was densely paved with small sherds and stones and the upper layers of the street were full of discarded bones and sherds, presumably deposited as trash over the life-use of the street. Three (1 x 2 m) soundings were cut into the street in order to ascertain its sequence of construction and deposition and to collect faunal, botanical and artifactual samples. From these soundings it could be seen that the streets were long-lived, since the street deposits varied from 60 to 90 centimeters in depth. Further it could be observed that the location of the street remained stable throughout the use of the buildings, some of which showed significant modification during their lifetimes. Finally, the street soundings show that the street system did not grow by slow accretion but was instead deliberately laid out. The sampled street was constructed by cutting a linear foundation trench into virgin soil and lining its bottom, first, with small limestone boulders and, then, with compacted layers of small river pebbles. It is clear that the street was laid before the houses at either side were constructed because, in places, the foundation trenches for the house walls had cut into the street.

Houses

Within the area of 1,000 square meters excavated in the Lower Town in 1996 only one complete house plan was uncovered. The house in question is situated at the center of the exposed area (Fig. 2:"1", Figs. 4, 5b). Portions of four other houses were exposed to the east and west of this central house (Figs. 2:"2-5"). However, complete plans could not be obtained for these latter structures because of disturbances caused by wall and stone robbing in antiquity. Scattered sherds in the robber trenches indicate that this robbing started already at the very beginning of the Middle Bronze Age occupation of the site (equivalent to Kurban Höyük, Period III), when the Lower and Outer Town sectors of the settlement were abandoned and settlement at the site had contracted to the central acropolis. What follows is a description of the one complete house plan exposed in 1996. Further analysis of this building and the remaining structures is on-going.

At its initial foundation, the house (Building Unit 1) (Figs. 2:"1", 4, 5b) consisted of fifteen rooms arranged around a central rectangular courtyard (approximately 7.30 meters EW and 6.00 meters NS in size), which was subdivided with short partition walls defining what appear to have been four discrete working areas. The total area occupied by the house is approximately 285 square meters, although the possibility of a second story in places (plus rooftop working space) would dramatically increase this figure. The rooms are arranged in linear registers, each consisting of three to five rooms, which surround the courtyard on all four sides. The northernmost register of rooms (hereafter the "annex") does not have immediate access to the courtyard, with courtyard access available only thorough an intervening space.

The house plan just described appears to be characteristic for non-elite domestic houses at the site in its Late EBA phase, since a comparable plan was recovered (at a slightly reduced scale) in several of the houses exposed in the contemporary neighborhood area in the Outer Town excavated in 1994 and 1995. Figure 5 illustrates pertinent examples from these two widely separated areas. As may be observed, the gross morphology of the houses illustrated is very similar: both are physically divided into two separate units (a main courtyard-centered 'house' and an annex structure) connected by a single doorway. Hill (1967: 149), in discussing a contemporary house of similar plan from Level IVc at Tell Asmar,³ has suggested that such a division could serve to separate private space from public space (the main house being private, the annex being public). A further possibility is that the bipartite division of the houses reflects gender-specific activity areas. These propositions need to be tested against the full range of artifactual data from each sector of the houses.

Equally clear are striking similarities in circulation patterns shared by both houses, at least in their initial foundation phase. In both cases, one enters the buildings through a small "antechamber" or entrance room from the street, Outer Town (A1) and Lower Town (A1), then passes through a second small room, Outer Town (B2) and Lower Town (B4) from which there is passage to both the main house and the annex structure (D). In this way, access to the entire complex is controlled from a room set directly off of the main communication node. Ranged

³ For preliminary comparisons between the Level IVc house at Tell Asmar (House II) and analogous houses at Titris (e.g., Outer Town, Building Unit 2), see Matney and Algaze 1995: 41-42, fig. 11. For a more thorough analysis of the two houses and of the potential implications of the observed architectural parallels at Titris and Tell Asmar, see now Matney In Press.

around the courtyard or central communication node of each house: Outer Town (C4) and Lower Town (C5) are a number of subsidiary rooms of varying size, marked as "E" and "F" on Figure 5. Although the circulation pattern is not identical in both cases (e.g., there is no access from Lower Town (B2) into the central room (C5) strong similarities exist. For example, all of the iEİ- and iFİ-rooms are interconnected in a linear fashion with one another, with multiple entrances into the central room or courtyard.

A range of activities appear to have taken place within the Lower Town houses. Multiple areas devoted to food preparation (marked by built hearths, blackened plastered floor patches, cooking pots, and variously-shaped grinding implements) were identified within the houses. The distribution of such areas may serve to identify distinct nuclear family units within the houses, which almost certainly were built to house extended families. However, as Henry Wright (pers. comm. 1997) notes, the proliferation of cooking areas within the houses may also reflect separation of cooking by socio-economic or ritual status. Some specialized production activities also took place within the houses. At least two of the units had carefully plastered and raised oval basins (e.g., Fig. 6). In previous seasons, on the basis of high concentrations of tartaric acid in the plaster of one of the comparable Outer Town examples, it was suggested that these basins served to process grapes, possibly in connection with wine production (V. Badler, pers. comm. 1994).⁴ However, one of the Lower Town examples recovered this year clearly was not intended for wine production since its runoff drained directly into the street. Thus, it is likely that these plastered basins may have served multiple functions. Also draining directly into the street was a large limestone basin found over a raised platform on the corner of a house room (Algaze et al. 1996: Figs. 11-12). Virginia Badler (pers. comm. 1997) suggests that basins with street drainage may have served to wash and process wool or fleece.⁵

Further evidence about productive activities within the domestic realm is provided by the associated artifactual evidence. For instance, several houses contained a small number of stone loom weights, which no doubt are associated with textile production. Also common within the houses were a fair number of Canaanian blades. Since, in Palestinian sites these blades were primarily used as sickles (Rosen 1983), our working hypothesis at this point is that their presence within the Titris houses can be interpreted as an indication that individual households were involved in agricultural production. However, the detailed tool analyses that are necessary to test this proposition at Titris have not yet been undertaken. In any event, a cache of 9 unused blades (Fig. 7) was found on the floor of a room (Locus 35-10:027) in one the houses excavated in 1996 (Fig. 2:"2"). This is the largest such cache of blades yet recovered at the site.⁶ Less clear is whether metallurgical activities took place within the houses. To be sure, a squarish stone mold for casting various types of lead jewelry, stamp seals, and figurines was found on the courtyard of the completely preserved house discussed earlier (Figs. 19-20). However, this object need

⁴ Chemical analyses of the residue were done by Drs. Patrick E. McGovern and Don L. Glusker, both of MASCA, at the University of Pennsylvania.

⁵ Badler notes that because of the associated fat and grease, wool processing is an activity that would have left testable chemical residues in the basins. We intend to test this hypothesis in the near future.

⁶ Earlier surveys in the immediate vicinity of Titris show the existence of numerous Canaanian blade cores in one of the extra-mural suburb areas on the eastern edge of the site (fig. 1). These cores suggest the existence of a specialized production facility for Canaanian blades at Titris (Matney and Algaze 1995: 45-46).

not be interpreted as evidence for metallurgical production at the domestic level because kilns, slag, crucibles, and other necessary paraphernalia attending such production are not otherwise attested within any of the exposed domestic units. Thus far unique at the site, this mold is discussed in greater detail in Section VI, below.

III. LATE EBA INTRAMURAL MORTUARY REMAINS IN THE LOWER TOWN

An important aspect of Late EBA houses at Titris was their function as the center of mortuary ritual. Like several of the comparable Outer Town houses previously excavated (Matney and Algaze 1995: 42-43), two of the Lower Town houses exposed this year had associated intramural tombs. A total of three such tombs were found within two separate Lower Town houses. One (Tomb 36-10:025) was located within a room in a fragmentarily preserved and much disturbed house (Fig. 2:"5"). The other two tombs were both within a better preserved house (Fig. 2:"4") and appear to have been used successively. The earlier of the two (Tomb 34-13:029) was located within a room and the later tomb (Tomb 34-13:017), built after the preceding had fallen into disuse, was situated in the corner of a courtyard. The largest tombs were those within house rooms, and were built at the time of the initial construction of the houses (Loci 34-13:029 and 36-10:025). Both were limestone-lined cists capped with long flat capstones. Each had an exterior pit (dromos) leading to a door, which consisted of a large limestone slab standing on edge, and each contained the mostly disarticulated remains of multiple individuals, including adults and children.

Tomb 36-10:025 was still sealed and measured 2.10 by 1.40 m (Figs. 8-9). It contained a minimum of 7 individuals, apparently both male and female adults.⁷ Over 100 burial offerings were recovered in association, including various types of specialized ceramic vessels, numerous bronze pins, shell and frit jewelry, a unique pedestalled basalt stone mortar, and one large bronze dagger (Figs. 10-12). Tomb 34/13:029 had been disturbed in antiquity and its capping stones had been reused in nearby wall repairs. Apparently it was also plundered at the time, because the few vessels found within it were mostly smashed. However, one large bronze lance or pike head was also found inside the tomb (Fig. 13). This tomb contained portions of at least 9 adults (of both sexes) and 1 child. Surrounding the tomb within the room were several infant burials, each contained within a reused cooking pot capped by a large flat stone. The close association of these various interments suggest that the room in which they were found (Fig. 14, center) was wholly devoted to mortuary ritual. Perhaps indicative of such rituals is a red washed, two-handled cup (*depas*) of Troy II date and West Anatolian type found inside the room (Fig. 15).

The number of individuals in the intramural tombs found within Late EBA houses in both the Outer and Lower Town sectors of the site, and the disarticulated and fragmentary state

⁷ All observations about human osteological material in this report were made in the field by Dilek Erdal, a graduate student in Physical Anthropology at Ankara University. All such identifications should be considered tentative until a more thorough analysis of the material is completed. All human osteological material from Titris, including those recovered in the 1996 season, are now stored in the laboratory of Dr. Metin Özbek, at Hacettepe University in Ankara. A final report of this material is now in preparation.

of most of the skeletons within such burials, suggests that these tombs were reused repeatedly, portions of the previous occupants being swept to one side with each reuse. Our working hypothesis is that these repeatedly reused communal tombs served as ancestral family crypts for the extended households occupying the house.

IV. LATE EBA EXTRAMURAL CEMETERY

The Lower Town Late EBA neighborhood described earlier had been cut into an area of the mound that appears to have served as an extramural cemetery, itself cut into virgin soil. At least three preexisting cist tombs and one jar burial belonging to this cemetery phase were noted within several widely separated trenches, all directly underlying the Late EBA architecture. Two of these burials were excavated. One was a small cist tomb (Locus 35-10:031) containing a badly preserved child burial without any associated artifacts. The second excavated burial was more informative. This was a large cist tomb (2.7 x 1.4 m at the exterior edge of the tomb walls) capped with large flat-lying limestone slabs (Locus 35-12:078), which was overlain by portions of two rooms of the one complete house described earlier. The burial was entered through a dromos and a door of the usual type consisting of a rectangular limestone slab standing on edge. A small number of plain simple ware cups with incurved walls and beaded rims, typical for the Late EBA phase at the site (type as Fig. 18 A), had been deposited as final offerings against the outside of the door. The door led to a narrow rectangular antechamber which, in turn, stepped down to a wider rectangular chamber (Fig. 16). Within the larger chamber were found the remains of 5 individuals and about 30 associated vessels of Late EBA type and several bronze pins. Bone preservation was particularly poor in this burial because one of the capping slabs had collapsed directly over the bones and badly crushed them. Subsequently, it appeared that the burial chamber was filled with purposeful fill, full of trash and potsherds. Because this burial was under portions of a Late EBA house, it is likely that it was broken into and filled at the time the house was constructed, almost certainly to strengthen the overlaying foundations. It is noteworthy, however, that the intruders who broke the capstone and filled the grave did not remove the associated grave goods. This suggests a continuing respect for the earlier graves.

V. LATE EBA CHRONOLOGY

Artifactual comparisons suggest that the Late EBA domestic structures and intramural tombs exposed in the Lower Town in 1996 (above) are contemporaneous with the comparable houses and tombs previously exposed in the Outer Town sector of the site (Algaze et al. 1995, 1996; Matney and Algaze 1995). The ceramic assemblages of both areas, in turn, can be equated with the final phase (Period IVA) of the Mid-Late EBA sequence of the now flooded site of Kurban Höyük, once situated some 20 km southwest of Titris (Algaze 1990).⁸ Common in the

⁸ More specifically, the Late EBA materials from the Outer and Lower Town neighbourhoods correlate with the Phase 21 materials in Area A at Kurban (Algaze 1990: Fig. 68).

houses exposed in both the Outer and Lower Town sectors of Titris, and particularly distinctive for the Late EBA phase at the site, are plain simple ware cups with incurved walls and beaded rims (Fig. 18 A), medium to large jars with narrow to wide necks and blunt or club-shaped rims (Fig. 17 A-F), and squat, hole-mouthed cooking pots with triangular ledge handles (Fig. 18 E). Reserve-slipped, Metallic, Band-Painted (Fig. 18 D), and Smeared-Washed Wares (Fig. 18 C), while attested in both areas, are only present in trace amounts. The only type of Karababa painted ware attested with these assemblages is represented by footed goblets or jars decorated with painted triangles and various types of linear or circular incisions (Fig. 18 B).⁹ A representative collection of Late EBA ceramics from domestic contexts at the site is illustrated in Figures 17-18, a coherent group found smashed on the floor (Locus 82-86:020) of a storeroom in one of the Outer Town houses.

The contemporaneity of the two domestic areas excavated in the Lower and Outer Town sectors of the site between 1994 and 1996 is buttressed by available radiocarbon dates from the two areas. Seven dates have been run thus far, all by conventional methods: six from the Outer Town houses excavated in earlier seasons and one from the Lower Town houses just excavated (Table 1). Though further dates are still needed, it is already apparent that five of the seven dates cluster into a very tight group (Table 1: Beta-80449, 80448, 95287, 95289, and 95288). This cluster includes samples from both areas and provides our best indicator for the absolute chronology of the Late EBA phase at the site. When these 5 dates are pooled, they yield an average date of 3833 ± 34 BP. Though admittedly this is an imprecise way of summarizing the pertinent C14 data from the two areas, after calibration this pooled date has a 68 % probability of falling in the 2326-2199 BC range and a 96 % probability of falling in the 2451-2143 BC range. Of this later range, it is 87 % probable that the true date falls somewhere in the 2370-2182 BC range.¹⁰

VI. STONE MOLD FOR LEAD TRINKETS

Holly Pittman

One of the most interesting artifact finds made during the 1996 season was a mold for the manufacture of small figurines and pendants, probably from molten lead (TH 60632) (Figs. 19-20). Lead rods, in fact, are commonly found at Titris, both within the Late EBA houses and as offerings in associated intramural burials. While it is a well-known type, the Titris mold is welcome because it is the first to come from a good archaeological context: it was found face down in the courtyard of the complete house described earlier.

The mold is a flat rectangular slab of a soft grayish stone, either chlorite/steatite or serpentine. It measures 7.8 cm by 7.3 cm and is approximately 1 cm in thickness. The conclusion that it was originally a two piece mold is suggested by the presence of two dowel holes located along

⁹ For definitions of these various ware types, see Algaze 1990: 311-333.

¹⁰ All samples in Table I consisted of carbonized wood and were analyzed by Beta Analytic Radiocarbon Dating Laboratory (Miami). All results have been recalibrated using the latest calibration curves (Calib, revision 3.0.3) from the University of Washington (Stuiver and Reimer 1993). We would like to thank Dr. Henry Wright for assistance in recalibrating the dates.

the lower right hand and the upper left hand edges of the plaque. Wooden dowels would have secured an uncarved slab over the top of the carved surface of the mold.

Shallow negative forms for eight different objects are cut into the mold's surface. The reverse is uncarved, but has been striated with a quadrille pattern, perhaps the result of the sharpening or cleaning of a blade. While the mold has certainly suffered from the battering of time and use, it is essentially intact as an object. However, neither air vents or sprue holes clearly remain along the battered edges.

The eight different forms arranged over the surface of the mold include a frontal female figurine, five pendants, and two stamp seals (Figs. 19-20). The female figure stands frontally holding both of her hands under her small drilled breasts. She is nude with the exception of a belt, perhaps a double strand of beads, and a three-strand choker at her neck. Her hair is arranged with a single wave falling down each side of her face. Curls of hair are indicated by small spheres arranged across the crown of her head. To the figurine's left are arranged four small mold forms. Above is a concentric circular pendant with six spokes radiating from a center point. Below is a profile representation of a bird, probably a waterfowl, with a loop for suspension on its back. At the bottom is the rectangular bezel of a stamp seal whose surface is inscribed with crossing diagonals each filled with a triangle. To the figure's immediate left is a rectangular pendant from whose top corners two frontal bulls heads emerge on long necks. To the right of the figurine are three more negative forms. The top one is a circular boss with a central depression from which five triangles separated by drill holes radiate; below that is a pendant in the form of a long necked jug with a concentric circular decoration on the bulbous body; beneath is a circular bezel of a stamp seal divided by crossing diagonals filled with rectangles.

Both similar molds and objects cast in lead from such molds have long been known, the first one being published in the middle of the 19th century. As a type, the lead mold has been the object of two extensive studies. The first, published in 1965 by Jeanny Vorys Canby, surveys some of the known molds (dubbed by her "trinket" molds) and cast objects, including excavated pieces and examples from the antiquities market. The second is a more comprehensive examination of all of the pertinent evidence by Kutlu Emre (1971).

Because of the large number of negatives carved into these molds and the combination within a single mold of cast objects in recognizable Mesopotamian and Anatolian motifs, Canby (1965) argues that the molds were used by itinerant smiths plying their trade between various north Mesopotamian, central Anatolian, and Aegean urban centers. Be that as it may, both studies conclude that two distinct groups can be defined within this mold type, each with its own distinct iconographic repertoire. The scant archaeological evidence suggests that these two types have chronological rather than regional significance. Further it seems that such molds were used over an approximately four hundred year period during the later part of the Early Bronze Age and the end of the Old Assyrian Colony period, that is to say somewhere between 2250 and 1750 BC. The Titris mold belongs to the earlier type, which both Canby and Emre, on the basis of iconographic parallels, date to the last quarter of the third millennium B.C. While there is evidence that these molds were used in southern Mesopotamia (one example was found at Sippar, cf. Emre 1971: pl. II:1), the bulk of the evidence, both archaeological and circumstantial, suggests that they are an Anatolian type. The Titris example, coming from a well dated context, confirms both the chronological position and the regional distribution of these lead molds. A detailed comparative study of the Titris mold will be the subject of a separate study.

VII. PRELIMINARY CONCLUSIONS

Evidence for Urban Planning within Late EBA Domestic Quarters.

The combination of the extensive 1996 exposures of a Late EBA domestic neighborhood in the western end of the Lower Town (1000 sq. m) and equally extensive (1175 sq. m) earlier exposures of comparable domestic installations in the eastern end of the Outer Town provide us with considerable evidence for the organization of domestic space within different quarters of the ancient city at the time of its Late EBA floruit. It should be clear from our descriptions that although houses in each area commonly exhibit individual sequences of secondary modifications and rebuildings, at their initial foundation level the Late EBA neighborhoods evince centralized planning and labor mobilization beyond those characteristic for the household level. Elements of formal urban planning visible in both of the exposed sectors include:

- (1) Striking parallels in house plans (albeit at different scales, see Fig. 5).
- (2) Formally-laid, long-lived streets built prior to the construction of adjacent structures.
- (3) Large-scale terracing operations, with coherent terrace walls that follow contour lines and that often crosscut individual building units.
- (4) Repeated uniform measures of land within the neighborhoods.
- (5) Symmetry in wall alignments that extends across partition walls delineating individual houses and even across streets.
- (6) Symmetry in entrance alignments across streets (Lower Town Only).
- (7) Sophisticated communal subfloor drainage systems.

Intra-site Spatial Differentiation

Inferentially, we would expect that differences in status and access to wealth within Late EBA society would be reflected spatially within the ancient city. More specifically, we would anticipate that higher status individuals and households would be situated closest to the High Mound, where temples and palaces are likely to have been located, and that areas farther away from the site's core would be inhabited by lower status individuals and households. Thus, we would expect that (1) households in the Lower Town would be on the whole of higher status than those in the more peripheral Outer Town, and, further, that (2) status within the Lower Town itself would decrease in direct proportion to distance away from the High Mound.

Even before detailed comparative analyses of the Lower and Outer Town Late EBA data now at hand are undertaken, some of these expectations appear supported. For instance, while the principles of organization of the Late EBA neighborhoods in the two areas appear remarkably similar, the fact that individual structures in the Lower Town are larger than comparable structures in the Outer Town (Fig. 5) suggests the existence of patterned differences in status between the inhabitants of the two areas. Similarly, while formal analyses remain to be made of the full artifactual and ecofactual assemblages recovered in each of the two areas, it already appears reasonably certain that Lower Town households evinced higher status and increased access to wealth than comparable households exposed in the Outer Town. Particularly telling is the jewelry mold discussed earlier, which suggests that inhabitants of the Lower Town house

in which it was found were somehow involved in craft production and metallurgy, although certainly not within the domestic realm. By the same token, in terms of the quantity and quality of associated goods, intramural burials within Lower Town houses appear richer than comparable burials in exposed Outer Town Houses. It is noteworthy, for example, although admittedly hardly statistically significant, that although adult males are represented in the mortuary assemblage of both areas, weapons have only been found in the Lower Town burials.

The Collapse of the City

The 1996 excavations in the western periphery of the Lower Town suggest that the collapse of the city in the Late EBA was a relatively swift event. This may be inferred from the fact that Late EBA neighborhood described earlier in the western periphery of the Lower Town had been cut into an area of the mound that served as an extramural cemetery area, which itself was of Late EBA date. Contrary to our previous working hypothesis to the effect that the site had achieved its maximum extent at the time of its initial Mid EBA expansion and contracted slowly through the Late EBA (Algaze and Mısır 1995), the sequence of construction uncovered this year in the westernmost periphery of the Lower Town appears to suggest instead that the site achieved its maximum extent only in the Late EBA. Further, that sequence also suggests that the Late EBA was still a time of vigorous expansion within the city, as seen by the construction of new neighborhoods encroaching into cemeteries at the very edge of the settlement. Thus, the abandonment of the Lower and Outer Town sectors of Titris, when it occurred, came at a time of ongoing expansion rather than as the culmination of a long-term process of slow and gradual retrenchment of the settlement.

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Site Sec tor	Lab No.	Locus	Con- text	Sample No.	BP Date	Inter cepts	1 Sigma Calib. (68.3%)	Percentage of Probability	2 Sigma Calib. (95.4%)	Percentage of Probability
Outer Town	Beta- 80446	79-85: 031	Floor	TH 6162	4260 ± 170	2886 BC	3076- 2611 BC	3086-3060: .04 3044-2586: .96	3357- 2409 BC	3359-2453: 1.0 2421-2406: .00
Outer Town	Beta- 80449	80-85: 015	Street	TH 3771	3860 ± 180	2315 BC	2568- 2035 BC	2564-2523: .07 2501-2093: .85 2090-2037: .09	2877- 1776 BC	2872-2800: .04 2777-2713: .02 2708-1877: .93 1834-1822: .00 1795-1788: .00
Outer Town	Beta- 80447	79-87: 046	Floor	TH 8267	3630 ± 60	1972 BC	2113- 1890 BC	2111-2089: .10 2038-1895: .90	2141- 1780 BC	2173-2168: .00 2141-1871: .93 1842-1778: .07
Outer Town	Beta- 80448	79-87: 047	Floor	TH 8274	3860 ± 70	2315 BC	2457- 2197 BC	2452-2424: .12 2404-2273: .65 2255-2204: .23	2490- 2048 BC	2487-2132: .98 2076-2048: .02
Outer Town	Beta- 95287	81-85: 065	Floor	TH 12161	3770 ± 60	2190; 2160; 2145 BC	2281- 2045 BC	2281-2127: .83 2080-2045: .17	2398- 1980 BC	2399-2376: .02 2355-2015: .96 2006-1979: .02
Outer Town	Beta- 95289	79-87: 042	Supra- floor	TH 12560	3860 ± 70	2315 BC	2457- 2197 BC	2452-2424: .12 2404-2273: .65 2255-2204: .23	2490- 2048 BC	2487-2132: .98 2076-2048: .02
Lower Town	Beta- 95288	34-12: 010	Supra- floor	TH 15038	3860 ± 70	2315 BC	2457- 2197 BC	2452-2424: .12 2404-2273: .65 2255-2204: .23	2490- 2048 BC	2487-2132: .98 2076-2048: .02

Table 1. Late Early Bronze Age C-14 Dates From Titris Höyük.

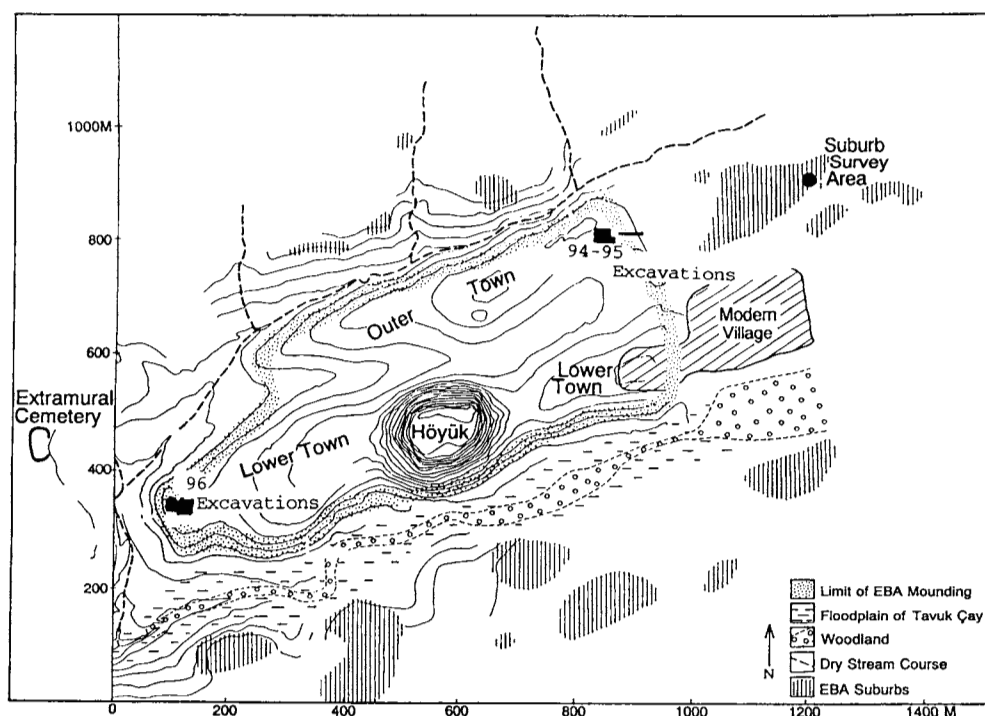


Fig. 1. Contour plan of Titris Höyük showing the location of the morphological areas discussed in the text and the 1994-95 and 1996 excavation areas.

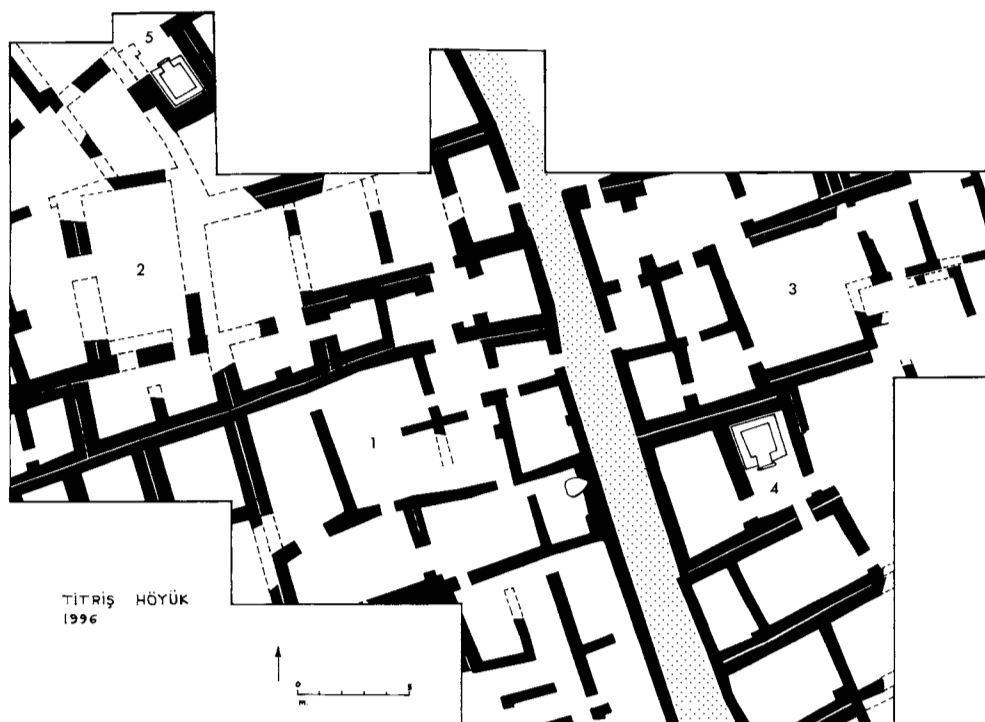


Fig. 2. Titris Höyük, Lower Town. Plan of architecture excavated in 1996 in Trenches 34-10/14, 35-10/14, 36-10, and 36-12.



Fig. 3. Titris Höyük, Lower Town. Overall view of excavations in Trenches 34-10/14, 35-10/14, 36-10, and 36-12. View toward the north.



Fig. 4. Titris Höyük, Lower Town. Complete house in Trenches 34-11/12, 35-11/12. View toward the east.

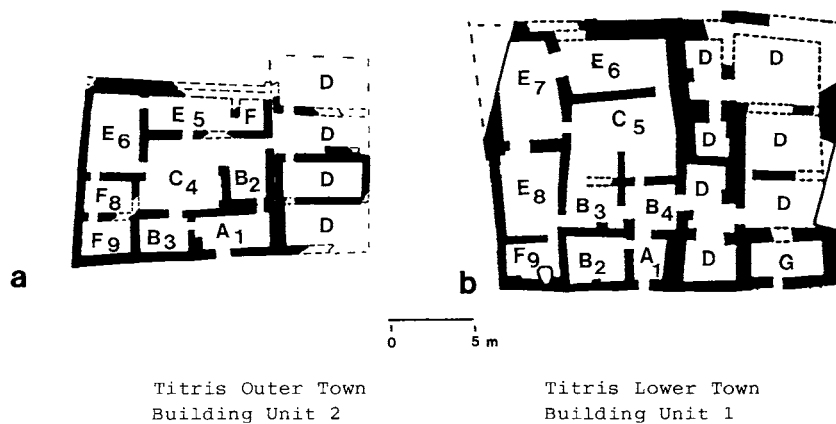


Fig. 5. Titris Höyük, Lower Town. Comparison of Late EBA house plans in the Outer Town (A) and the Lower Town (B) sectors of the settlement. Scale indicated.



Fig. 6. Titris Höyük, Lower Town. Plastered basin (Locus 35-12:035).
View toward the west.



Fig. 7. Titris Höyük, Lower Town. Cache (TH 62585) of Canaanite blades from Locus 35-10:027, after cleaning.



Fig. 8. Titris Höyük, Lower Town. Intramural tomb (Locus 36-10:025). View toward the south showing capping slabs in situ.



Fig. 9. Titris Höyük, Lower Town. Intramural tomb (Locus 36-10:025). View from the top after opening showing in situ remains.



Fig. 10. Titris Höyük, Lower Town. Selected artifacts from upper layer of associated goods (Locus 36-10:048) in Intramural Tomb 36-10:025.

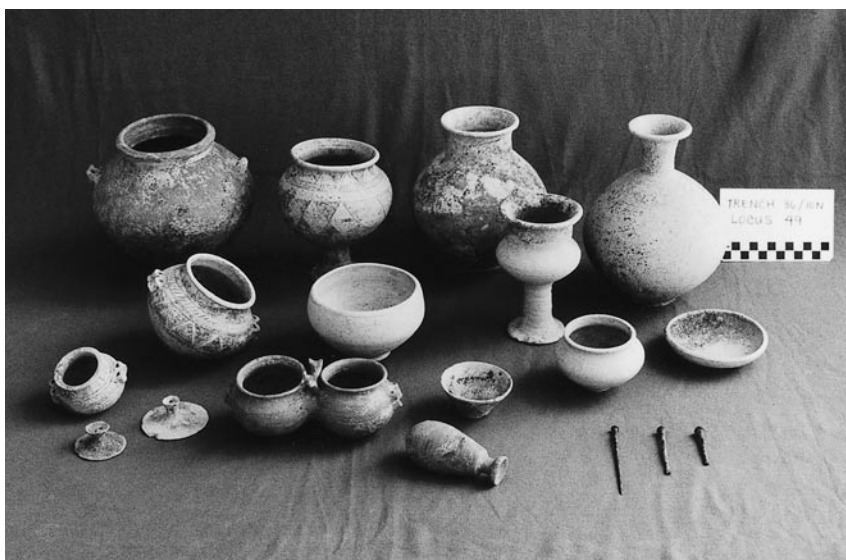


Fig. 11. Titris Höyük, Lower Town. Selected artifacts from upper layer of associated goods (Locus 36-10:049) in Intramural Tomb 36-10:025.



Fig. 12. Titris Höyük, Lower Town. Bronze lance-head (TH 65179) found inside Intramural Tomb 34-13:025.



Fig. 13. Titris Höyük, Lower Town. Bronze lance-head (TH 65179) found inside Intramural Tomb 34-13:029.

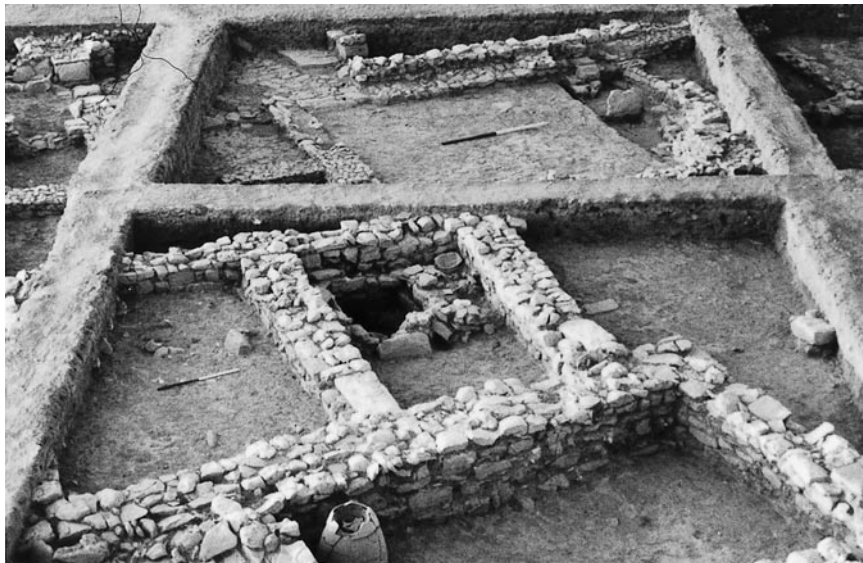


Fig. 14. Titris Höyük, Lower Town. Overview of excavations showing the location of intramural tomb (Center: Locus 34-13:029) within room of Late EBA House. Note infant jar burial nestled between corner of room and corner of tomb. View toward the north.



Fig. 15. Titris Höyük, Lower Town. Red-washed *depas* vessel (TH 65077) found inside "mortuary" room within Late EBA house.



Fig. 16. Titris Höyük, Lower Town. Extramural tomb, Locus 35-12:078. View toward the east.

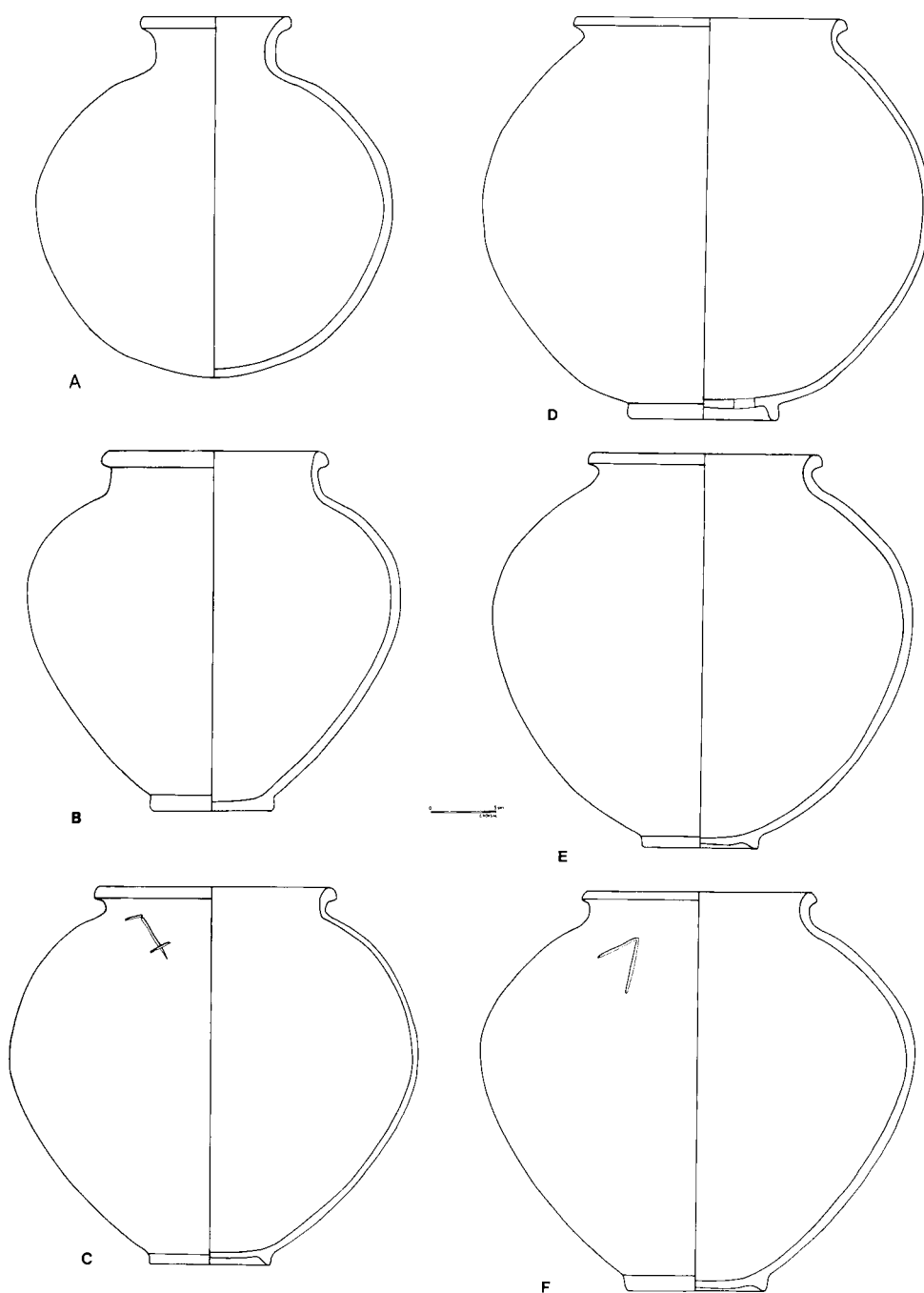


Fig. 17. Whole vessels from Locus 82-86:020, a storeroom within an Outer Town Late EBA House (Building Unit 2, see Matney and Algaze 1995: fig. 10). A. TH 18031; B. TH 18086; C TH 18054; D. TH 18036; E. TH 18093; F. TH 18088. Scale indicated.

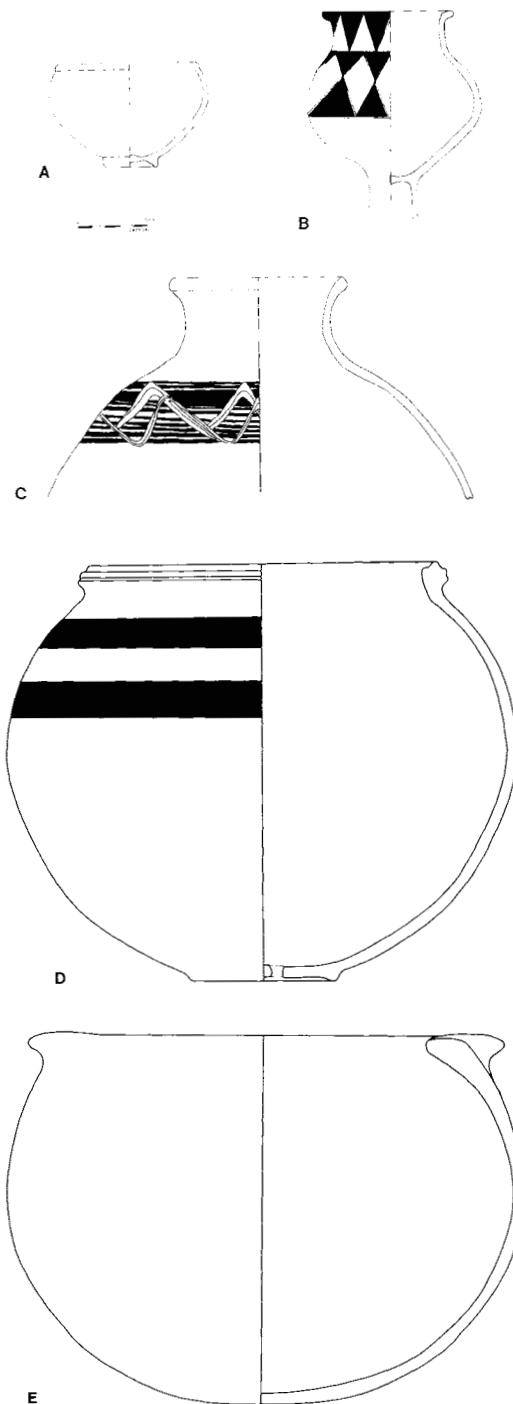


Fig. 18. Whole vessels from Locus 80-86:020, a storeroom within an Outer Town Late EBA House (Building Unit 2, see Matney and Algaze 1995: fig. 10). A. TH 18096; B. TH 18085; C TH 18068; D. TH 18030; E. TH 18087. Scale indicated.



Fig. 19. Titris Höyük. "Trinket" Mold (TH 60632) found in a Late EBA context. Obverse. Scale indicated.

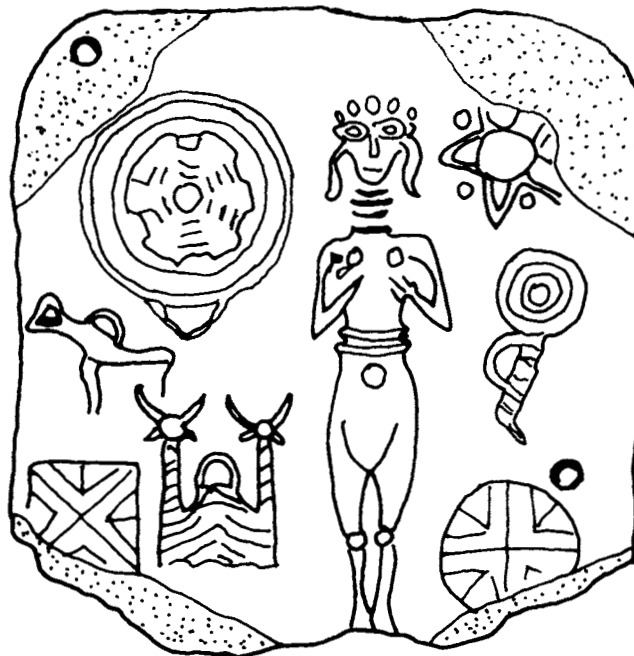


Fig. 20. Titris Höyük. "Trinket" Mold (TH 60632) found in a Late EBA context. Preliminary drawing of designs in obverse.

GÜVERCINKAYASI: Eine Vorgeschichtliche Felsrückensiedlung in Zentralanatolien¹

Sevil Gülçur

Der hochaufragende Felsen von Güvercinkayası (P33/54) oder Porsuklukaya, der sich ($\pm \Delta$ 1106.08 m ü. Mn) in nordost-südwestlicher Richtung hinzieht, liegt im westlichen Teil des kappadokischen Hochlandes im Gebiet der antiken *Garsauritis* ca. 20 km nordöstlich der modernen Provinzhauptstadt Aksaray, *Garsaura/Arkchelais*. Güvercinkayası flankierte vor dem Bau des Mamasun-Staudammes ca. 1 km westlich des Dorfes Çatalsu/Apsarı das rechte Ufer des Melendiz-Su (Abb.1). Jetzt am Rande des Staubeckens einer buchtartigen Geländeformation vorgelagert, wird dieser freistehende Felsen (Abb.4) jedes Jahr mit beginnender Schneeschmelze im Frühling bis zum erneuten Sinken des Wasserspiegels im Frühsommer bis zu der obersten Terrasse überflutet.

Der von der Flußseite schwer erklimmbare Güvercinkayası erhebt sich in unmittelbarer Nähe (Reichweite) eines alten Verkehrsknotenpunkts, einer wichtigen Kreuzung der antiken Wanderungswege. Eine mit Steinen gepflasterte römische Straße, die stellenweise 8 m breit ist, erklimmt ca. 500 m nordöstlich des Fundplatzes die Anhöhe, welche das kleine U-förmige Tal, in dem sich der Siedlungsfelsen erhebt, im Osten begrenzt. Die gepflasterte Straße stößt in dem Dorf Çatalsu/Apsarı auf eine andere vom Nordosten kommende Route, die sich, nachdem sie die Furtstelle südöstlich des Güvercinkayası überquert hat, sich in Richtung Aksaray fortsetzt (Abb.1)². Beide Straßenführungen waren bis zu der Überflutung des Gebietes durch den Stausee in den sechziger Jahren noch als wichtige Verkehrswege im Gebrauch.

Die vorgeschichtliche Siedlung von Güvercinkayası wurde 1994 während der "Aksaray, Nevşehir und Niğde Begehung" kartiert³. Die Siedlung besteht aus zwei Teilen: auf dem Felsplateau aus einem flachen langgestreckten Wohnhügel, der sich in sudwest-nordostlicher Richtung (\pm 4 x 40 x 60 m) erstreckt und aus einer entlang der Felsterrassen ausgedehnten Hangsiedlung (Abb.2). Der Höhenunterschied von der Felskuppe bis zur heutigen Talsohle beträgt im Osten

¹ Für die Durchsicht des Manuskripts fühle ich mich Herrn Prof. Dr. Harald Hauptmann und Frau MA Heike Offen-Eren tief verbunden.

² Für die antiken Straßen siehe: W.M.Ramsay, *The Historical Geography of Asia Minor*, Royal Geographic Society, Supplementary Papers IV (1890) 27; D. French, *Roman Roads and Milestones of Asia Minor I. The Pilgrims Road*, BAR INT. SER. 105 (1981) map 2; F. Hild, *Das Byzantinische Straßensystem in Kappadokien*, Österreichische Akademie der Wissenschaften, Phil.-Hist. Klasse, Denkschriften 131, Veröffentlichungen der Kommission für Tabula Imperii Byzantini 2, (1977) 43.

³ Für die Unterstützung der Geländebegehungen durch ein Stipendium ist die Verfasserin dem "American Research Institute in Turkey" zu Dank verpflichtet. Zu Güvercinkayası: S. Gülçur, in *Habitat II. Çağlarboyu Anadolu'da Konut Bildiri Özetleri*, Istanbul (1996) 11f., diers. XIII. Araştırma Sonuçları Toplantısı (1997) Abb.5.6 (im Druck).

ca. 13 m und im Norden mehr als 15 m. Der akropolisartige Siedlungshügel, der zum ehemaligen Melendiz-Tal hin von steil abfallenden Felsen abgeschirmt wird, geht im Süden, Osten und im Norden in eine sich fächerförmig ausbreitende Hangbesiedlung über, welche sich durch mächtige Schuttablagerungen aus Bruchsteinen, die von reichen Keramik- und Obsidianfunden durchsetzt sind, auszeichnet (Abb.5). Der südliche Abschnitt der Hangsiedlung ist der Wassererosion am stärksten ausgesetzt. Hier wurden die Baureste bis auf einen schmalen Streifen, der nischenartig in geschützter Lage auf der obersten Terrasse am Fuße des Akropolis-Felsens liegt, restlos abgeschwemmt.

Der Felsen bleibt noch bis in die ersten Juniwochen entsprechend der jährlichen Niederschlagsmenge bis auf eine Höhe von ± 1.001 m ü. Mn. vom aufgestauten Wasser umspült. Schon Mitte Juli wird die Passage im Osten relativ trocken und ermöglicht den Zugang zum Fundplatz. Mitte August erreicht die Aufstauung seinen vorläufigen niedrigsten Stand. In Dürre Jahren wie 1994 geht die Flut bis in das Flußbett zurück, sonst bleibt ein Teil der Siedlung am Fuße des Nordhangs über das ganze Jahr hindurch überschwemmt.

Die Schirmherrschaft über das Gesamtprojekt von Güvercinkayaşı (Nr. 813/190496) trägt der Forschungsfond der Universität İstanbul. Die Untersuchungen werden in Zusammenarbeit mit dem Direktor des Aksaray-Museums Muhsin Endoğlu und dem Seminar für Ur- und Frühgeschichte der Universität İstanbul durchgeführt.

Die Grabungen begannen am 3. September 1996 und wurden am 8. Oktober abgeschlossen⁴. Den Feldarbeiten ging eine systematische Begehung der Fundstelle voraus. Nach der Anlegung eines Quadratennetzes (10 x 10 m) wurde mit der Aufnahme der teilweise vom Wasser freigespülten und erodierten Bebauung auf der Hochterrasse entlang der äußersten Peripherie des Siedlungshügels begonnen (Abb.5). Damit wurde ein erster Einblick in die Anlage und Dichte der architektonischen Bausubstanz und -form gewonnen. Nicht zuletzt sollten auch in Verbindung mit dem Baubefund (Abb.5) Beispiele der Keramik, Steinartefakte aus Obsidian (siehe Anhang), Reibsteingeräte (Abb.30), Tierknochen bz. Küchenabfälle der Siedler und andere stratifizierte Funde sichergestellt werden.

Die Grabungen auf der Hochterrasse

⁴ Die topographische Aufnahme des Siedlungsfelsens wurde durch die großzügige Unterstützung des Abteilungsdirektors Herrn Mustafa Özateş von dem Topographen-Team des Staatlichen Wasseramtes (44. Bezirk) unter der Führung von Herrn Mahmut Özateş angefertigt und von dem Architekturstudenten Bahadır Özkanlı begleitet. Frau Demet Kara und Herr Fariz Demir, beide Archäologen am Museum von Aksaray und Binnur Musaoğlu (Studentin für Hethitologie) übernahmen die Grabungsaufsicht. Ihnen standen Abdullah Pazvant und Cüneyt Yüksel (Studenten der Klassischen Archäologie) zur Seite. Pınar Çaylı, Sevim Görür, Özlem Korkmaz und Fadime Yıldırım (Studentinnen der Ur- und Frühgeschichte) zeichneten sich bei der Fundaufnahme und -bearbeitung besonders aus. Banu Öksüz und Semra Yıldırım (cand. mag. für Ur- und Frühgeschichte) waren bei der Überwindung der Anfangsschwierigkeiten behilflich. Frau Dr. hab. Nur Balkan-Atlı (Seminar für Ur- und Frühgeschichte, Universität İstanbul) widmete sich der Bearbeitung der Obsidianartefakte. Dr. hab. Ergun Gürpınar (Politische Wissenschaften, Städteplanung und Umwelt, Universität İstanbul) hat sich zur Untersuchung der Siedlungsstruktur bereit erklärt. Kleinfunde und Pläne wurden lebenswüdigerweise von Frau Binnur Musaoğlu in Tusche umgezeichnet.

(Planquadrate 6-4 K, 4 J-İ)

Die Grabungen auf der Hochterrasse konzentrierten sich in den Planquadraten 6-5 K auf die östlichen und in den Planquadraten 4 J-İ auf die südlichen Bereiche der Schnitte (Abb.2.3). Als vorläufig weiteste Untersuchungsgrenze wurde die innere Wassererosionskante, die den zentralen Siedlungshügel hauptsächlich vom Osten und vom Norden her umsäumt, festgelegt. Mit dieser Maßnahme sollten die archäologischen Schichten, die Jahrtausende hindurch unter einem schützenden Erdmantel versiegelt waren, der Erosion und den Umwelteinflüssen standgehalten hatten, bis zu den großflächigen methodischen Untersuchungen in den kommenden Kampagnen weiterhin geschont bleiben (Abb.6).

Die Grabungen wurden in den Quadraten 6 K auf der östlichen Hochterrasse begonnen und schrittweise über die Areale 5-4 K bis zu den beiden östlichen Schnitten 4 İ und 4 J auf der nördlichen Hochterrasse ausgedehnt. Die Schichtstärke nahm in allen untersuchten Arealen vom Osten nach Westen bzw. vom Norden nach Süden von der blanken Felsoberfläche an den Terrassenkanten bis zum Hügelsaum erheblich zu (Abb.6.7).

Festgestellt wurde eine Hausreihe, die – der Terrassenformation entsprechend – aus radial aneinandergereihten Mehrraumgebäude besteht. Die Häuserfront wird sowohl auf der Ost-, als auch auf der Nordterrasse jeweils durch einen korridorähnlichen Durchlaß bzw. durch eine enge Gasse, die in das Innere des zentralen Hügels führt, durchbrochen (Abb.3).

Die gefurchte Oberfläche des gewachsenen Felsens dient dem aufgehenden Mauerwerk aus grob behauenen Bruchsteinen mit einigen Ausnahmen als Auflage (Abb.7). Obwohl die Mauern in den aufgedeckten Flächen nur einige Steinlagen hoch erhalten sind, läßt sich die Ausstattung der Räume mit Wandbewürfen, Lehmfußböden, Kuppelöfen und Herdstellen gut belegen (Abb.8). Dagegen konnten in keinem der aufgenommenen Gebäude Haupteingänge nach außen hin oder Türöffnungen, die die einzelnen Kammern miteinander verbinden, beobachtet werden. In der Bebauung stellen sorgfältig in den Felsen eingemeißelte bzw. eingebaute (Ø: ca 0.18 m, h: ca. 0.10 m) runde Vertiefungen, die einzeln oder angeordnet in Gruppen vertreten sind, ein auffallendes Phänomen dar (Abb.3). Über ihre Funktion war bis jetzt kaum eine endgültige Aussage möglich. Sie werden vorläufig als Lager für senkrechte Holzpfosten erklärt.

Die Grabungen auf der östlichen Hochterrasse

(Planquadrate 6-4 K)

Die Untersuchungen auf der östlichen Hochterrasse konzentrierten sich auf die Nordostecke des Schnittes 6 K und auf die Osthälfte der Schnitte 5-4 K. In diesen Arealen wurden zwei Häuserblöcke festgestellt, die durch eine enge Gasse voneinander getrennt sind (Abb.2.3).

Der südliche Komplex in den Schnitten 6-5 K besteht aus zwei Häusern. Diese beiden Häuser werden, ähnlich wie die übrigen Reihenhäuser der Siedlung durch eine gemeinsame Seitenwand, welche die Gesamtlänge der Wohnbauten einnimmt, voneinander getrennt. Von dem südlich gelegenen Wohnhaus in 6 K konnten vorläufig nur drei Räume festgestellt werden. Hier wird ein großer viereckiger Raum (M1) im Westen von zwei schmalen Kammern (M2,3), die sich hauptsächlich unter dem Höyük fortsetzen, flankiert. Der große Raum M1 ist so stark zerstört, daß nur ein Teil seines vierfach erneuten Lehmfußbodens an der nordwestlichen Raumecke

erhalten blieb. Unter der wegerodierten Aufschüttung der Begehungsfläche ist – wie oft an verschiedenen Stellen der Siedlung – der Felsen, der aufgrund seiner geologischen Formation stark durch Rinnen, Furchen und Stufen gegliedert ist, zutage getreten. Ein genaueres Studium dieses dürftigen Baubefundes ergab jedoch aufschlußreiche Erkenntnisse über die Überbrückung der Schwierigkeiten in der Bauplanung und Geländenutzung.

Die östliche Hochterrasse fällt vom Westen nach Osten leicht ab. Die beiden Kammern (M2-3) mit ihrer gemeinsamen Ostmauer sowie die Westhälfte des größeren Raumes (M1) sind direkt auf den festen Untergrund gesetzt. Die Osthälfte der 0.70 m breiten Trennmauer, die das Gebäude bzw. den Raum (M1) im Norden begrenzt, und ein Stück erhaltengebliebenen Fußbodens davor, ruhen dagegen auf einer Unterfüllung aus dunkel- bzw. violettbrauner grobkörniger Erde, die ca. 0.40 m stark ist. Das Material für die Unterfüllung ist mit größter Wahrscheinlichkeit lokalen vulkanischen Ursprungs und stammt vermutlich aus einer leicht zugänglichen Lagerstätte. Unter dieser Ausgleichsschicht ist im Untergrund ein Absatz im Felsen zu erkennen. Zudem durchzieht eine recht breite Furche, die um die Unebenheiten im Untergrund zu begleichen, vor dem Baubeginn mit Steinschotter zugefüllt worden war, diagonal in nordost-südwestlicher Richtung die Parzelle, die einst von dem Fußboden des Raumes M1 eingenommen wurde (Abb.9).

In der Regel setzen sich Fußböden aus drei verschiedenen Lagen zusammen. Die unterste Lage besteht aus amorphen Partikeln einer hellfarbenen Erde. Über diese Füllschicht, die $\pm 3-4$ cm stark aufgetragen ist, wird dunkelbraune feinkörnige Erde dünn ausgelegt, welche anschließend mit einer feuchten Lehmmasse $\pm 1-2$ cm stark überfangen wird. Zuletzt wird die noch feuchte oberste Schicht sorgfältig geglättet. Somit entsteht nach dem Trocknen des Estrichs eine trittfeste Begehungsfläche. In allen bisher untersuchten Arealen weisen die Fußböden Brandspuren auf, so daß sie durch Hitze einwirkung gehärtet sind.

Die Fläche 5 K schließt sich im Norden der Fläche 6 K an. Hier wurde in einem Areal von 10×5 m mit vier Räumen (M1-4/5) der Ostflügel eines Mehrraumhauses freigelegt (Abb.3). Sein Westflügel ist unter dem zentralen Hügel verborgen. Wie an dem benachbarten südlichen Gebäudekomplex wird auch hier die Außenfront von einem großen rechteckigen ($\pm 3 \times 6$ m) Raum (M4/5) eingenommen. An diesen schließt sich im Westen eine schlauchartig schmale Zelle (M3) an, die wiederum im Westen von zwei gleich breiten (je ± 2.00 m) Kammern (M1-2) flankiert wird.

Die Ostfront des Gebäudes ist während der wiederholten Überflutungen weggeschwemmt worden. Deshalb blieben von dem großen Raum (M4/5) nur die Rückwand, die Seitenmauern sowie ein Teil des mindestens dreifach erneuerten Lehmfußbodens erhalten. Abgeschirmt durch die Rückwand der großen Kammer war jedoch das immobile Inventar der leicht erhöhten schlauchartigen Zelle (M3) von der Wassererosion weitgehend geschont. Ein hufeisenförmiger Kuppelofen (Tn.1) vor der Nordmauer mit der Öffnung nach Süden ($\pm 0.40 \times 0.90$ m) und südlich davon eine Herdstelle (Oc.1) bzw ein Gluthalter(?) mit runder Backplatte ($\varnothing 0.40$ m) deuten diesen schmalen Raum höchstwahrscheinlich als Küchenbereich. Auf dem Fußboden unweit der Südmauer wurde außerdem ein Geweihpaar in situ gefunden. Ähnliche Geweih- oder Horndepots wurden in verschiedenen Räumen der Siedlung mehrmals beobachtet. Die beiden gleich breiten Kammern (M1-2) entlang der Schnittkante im Westen sind noch zu untersuchen.

Die Kuppelöfen bzw. die Herdstellen bestehen bautechnisch – ohne Zweifel, um eine gleichmäßige Hitzeausstrahlung zu erzielen – aus einigen Hauptkomponenten: dem Unterbau, der Herdplatte, Rand- bzw. Stützleiste und der Kuppel. In der Regel setzt sich der Unterbau

sowohl bei den Kuppelöfen als auch bei den Herdstellen aus drei verschiedenen Lagen zusammen. Die unterste Lage bzw. das Fundament besteht, wie am Beispiel des Kuppelofens Th.1 zu sehen ist, aus flachen 10-15 cm breiten Steinplatten (Abb.10) bzw. aus faustgroßen Steinen. Darüber kommt eine 3-4 cm starke Schicht aus grobkörniger Erde, die mit Bruchstücken von Tongefäßen ausgekleidet wird (Abb.11.12). Die Herd- bzw. Ofenplatte besteht aus Lehm. Diese Lehmmasse wird im feuchten Zustand wie ein Estrich auf die Tonscherben aufgetragen und anschließend sorgfältig geglättet. Eine ca. 10 cm breite, leicht einbiegende/konvexe Randleiste bildet bei den runden Herdstellen, die meist in der Nähe der Kuppelöfen aber frei im Raum stehen, den Abschluß.

Die Kuppelöfen, die von einer Stützleiste umgeben sind, werden in eine Raumecke plaziert. Mit der Rückwand und mit einer langen Seite lehnen sie sich jeweils an die benachbarte Mauer an. Die Lücke, die zwischen dem hufeisenförmigen Ofenkörper und den einander zulaufenden Mauern entsteht, wird durch Steine ausgefüllt. Die breite Stützleiste bzw. -bank, die die dem Innenraum zugekehrte Flanke des Ofenkörpers bis zu der Kammeröffnung ummantelt, besteht hauptsächlich aus einem Gefüge aus Lehmschlamm und locker gesetzten Steinen. Sie ist in gewisser Weise als die Fortsetzung der seitlichen Steinfüllung anzusehen. Die runden bzw. ovalen Kuppen, die mit Hilfe von breiten Lehmstreifen aufgewulstet worden waren, sind vorläufig nur in Ansätzen feststellbar.

An allen bisher untersuchten hufeisenförmigen Kuppelöfen waren die Ofenplatten und die Kuppel wiederholt erneuert. Wenn eine Ofenplatte ihre Funktion nicht mehr erfüllen konnte, wurde sie mit einer dünnen Schicht Erde zugedeckt. In diese Planierschicht wurden erneut Scherben von zertrümmerten Tongefäßen eingebettet und anschließend mit Lehm verstrichen. Bei der Erneuerung der Herdplatten wurde ähnlich verfahren. Dafür scheint jedoch die Erhöhung der Begehungsflächen durch Auffrischen von Fußböden eher maßgebend gewesen zu sein als die Verschleißerscheinungen an den Herdplatten. Auch an den Kuppel-Ansätzen waren die aufeinanderfolgenden Erneuerungslagen eindeutig abzulesen.

Der schmale Aufweg M7, der das Areal 5 K in ostwestlicher Richtung durchquert, trennt nicht nur zwei Hauserblöcke voneinander, sondern markiert auch die Übergangszone von der Ostterrasse auf die Nordterrasse. Die Gebäude, die sich nördlich des Korridors erstrecken, beginnen sich allmählich in die Richtung der nördlichen Terrassenkante zu orientieren (Abb.3.6).

An dem Ostausgang des Korridors M7, der von Osten nach Westen leicht ansteigt, wurden Reste eines hufeisenförmigen Ofens (?) festgestellt (Abb.15). Der Ofen erhebt sich, um das Gefälle auszugleichen, auf einem Podest aus kleinen Steinen. Innerhalb des Korridors konnten auf der Oberfläche des gewachsenen Felsens keine Fußbodenreste beobachtet werden.

Der schmale Aufweg wird im Norden von einer langen Außenmauer begrenzt. Diese Hauptmauer setzt sich nach Westen hin unter dem zentralen Hügel fort (Abb.3). Wie die anderen Frontmauern besteht sie aus zwei Bruchsteinbreiten von mittlerer Größe. Die untersten Lagen des Mauerwerks sind aus größeren, annähernd viereckigen, flachen Steinen gesetzt, welche an den Außenkanten sorgfältiger behauen sind als die der höheren Mauerlagen (Abb.15).

Die lange Seitenmauer dient den Räumen M 6, M9 und M8 als Rückwand. Raum 6 ist wie die anderen Räume, die der Terrassenkante zugewandt sind, stark zerstört. Als einziger Fund deutet ein Scherbenpflaster an der südwestlichen Raumecke vermutlich auf eine erodierende Ofenstelle. In diesem Wohnhaus scheint die Raumeinteilung von dem benachbarten Hauskomplex, das sich dem Aufweg im Süden anschließt, teilweise übernommen worden zu sein. Auch hier wurden an dem zur Terrassenkante hin ausgerichteten Gebäudefront ein großer Viereckraum

M6 und – in seiner Parallelfolge getrennt durch eine schmale Mauer – eine lange schlauchartige Zelle M9 (Abb.13), die die ganze Breite des großen Raumes einnimmt, beobachtet. An diesem Eckhaus fehlen die beiden kleinen Zimmer, die bei dem Nachbarhaus dem zentralen Hügel zugekehrt sind. Es ist aus dem aufgenommenen Baubefund noch nicht klar zu ersehen, ob der nächste Raum M8 in der Raumfolge auch zu diesem nördlichen Hauskomplex dazugezählt werden sollte oder nicht.

Die Innenausstattung der ca. 3.5 m langen und 1.5 m breiten Zelle M9 besteht aus einem hufeisenförmigen Kuppelofen Tn. 2 an der südöstlichen Raumecke und aus einem Pfostenloch im Boden ± 0.40 m nördlich des Ofens (Abb.12.13). Die Kombination Kuppelofen oder Herdstelle mit Pfostenloch in der Nähe scheint in dieser Siedlung eine geläufige Erscheinung zu sein. Der durch Hitzeeinwirkung rot verfärbte Kuppelansatz des Ofens ist noch in einer Höhe von ± 0.20 m erhalten und weist mehrere Lagen von Erneuerungsschichten auf. In der ovalen Ofenkammer, die sich birnenförmig nach außen hin in der Richtung der Kammeröffnung verjüngt, lagen Bruchstücke eines schwarz-rot polierten, dickwandigen Tongefäßes mit massiven Henkel und ein dünner Langknochen eines noch nicht identifizierten Tieres in situ (Abb.14). Auf dem Lehmfußboden um den Ofen herum, welcher nur in diesem südlichen Bereich des Raumes beobachtet werden konnte, wurden weitere Bruchstücke von verschiedenen Gefäßen aufgelesen.

Der Raum M8 schließt sich vom Westen an die schlauchartige Zelle M9 an und macht gemeinsam mit dem Eckhaus die fächerförmige, radiale Schwenkung von der Ostterrasse auf die Nordterrasse mit. Die Trennmauer zwischen den Räumen M8 und M9 ist ± 4 m lang. Sie ist im Gegensatz zu den bisher untersuchten Mauern aus relativ kleinen Bruchsteinen erbaut und erreicht eine Breite von ± 0.45 m (Abb.3). Ob sie in einer späteren Phase an dieser Stelle zugefügt worden ist, bleibt noch zu klären. Der ± 2.50 m breite Raum M8 greift mit seiner Nordhälfte in die Fläche 4 K über. Abgesehen von seiner Südwestecke, die noch unter einer ± 1.00 m starken Versturzschicht, die aus dicken verbrannten Kerpiçbrocken und größeren, besser behauenen Steinen besteht, verborgen ist, wurde dieser Raum, der ursprünglich eine Länge von ± 6.00 m erreicht haben müßte, weitgehend erforscht (Abb.3). Das Gelände fällt hier wie überall entlang der Nordterrasse vom Süden nach Norden deutlich ab. Die Nordhälfte des Raumes ist wegerodiert. Eine runde Herdstelle ($\varnothing 0.60$ m), die mit einer leicht erhöhten konvexen ± 12 cm breiten Randleiste versehen ist, befindet sich in der Südhälfte frei im Raum. Ähnlich wie in dem benachbarten Raum M9 ist auch in diesem Zimmer unter dem dünn aufgetragenen Fußbodenbelag ein Pfostenloch an einer leicht exponierten Stelle am Felsen plaziert. Zwei große Reibsteinfragmente aus grauem feinporigem Gestein dürfen ohne Zweifel mit der Herdstelle bzw. mit dem Nahrungzubereitungsprozeß in Verbindung gebracht werden. Während der Flächenbegehungen wurden im Siedlungsschutt auffallend viele Reibsteinfragmente, sowohl Untersteine als auch Läufer von verschiedener Größe und Form wiederholt aufgelesen. In der Nordhälfte des Raumes neigt sich die Oberfläche des gewachsenen Felsens in Richtung der Terrassenkante stärker ab. Entlang der Ostmauer fiel an jener Stelle, wo das Gefälle deutlicher zu spüren ist, eine Anhäufung von Tonscherben besonders auf. Unter dieser Scherbenanhäufung konnte eine annähernd trapezförmige, mit Lehm verkleidete seichte Wanne mit gerundeten Ecken, die in nordsüdlicher Richtung in dem Felsen eingearbeitet worden war, freigelegt werden. Diese seichte Wanne mißt an ihrer breitesten Stelle ± 0.70 m und war mit größter Sicherheit als Herd- bzw. Ofenstelle in Gebrauch.

Die Grabungen auf der nördlichen Hochterrasse

(Planquadrate 4 K-Ĭ)

Die Länge der nördlichen Hochterrasse beträgt ± 80.00 m (Abb.5). Die Osthälfte der Hochterrasse, die von den Planquadraten 4 K-Ĭ eingenommen wird, ist durch eine hohe senkrechte Stufe im Felsen vom Nordhang klar abgesetzt. Ansonsten geht sie am Fuße des hochaufragenden Akropolisfelsens nach einer Einbuchtung in südwestlicher Richtung ohne klare Abgrenzung in den steilen Nordhang über. Im Westen bzw. an der Flußseite werden sowohl die Terrasse als auch der Nordhang von einer schützenden Felswand, einem Vorsprung im Felsen, begrenzt. Ein schmale Gasse bzw. ein Fußweg, der in einer späteren Phase blockiert wurde, ermöglichte auch auf der nördlichen Hochterrasse den Zugang von der Terrassenkante auf das Felsplateau (Abb.3.16). Im Anschluß an den Raum M8 in den Quadraten 5K erstrecken sich bis zu diesem zweiten Ausgang in 4<, weitere drei Wohnhäuser. Die nächste Folge von aneinandergereihten Gebäuden, welche sich in Richtung der Terrasseneinbuchtung fortsetzen, ist im Anschluß an den blockierten Fußweg im Westen, zu erkennen (Abb.16).

In der Fläche 4K bilden die Räume M1-3 eine Einheit (Abb.3.17). Hier wird der ± 6 m lange Nordteil eines Gebäudes von einem Viereckraum (M1) von erheblichem Ausmaß dominiert. Dieser Raum, der sich bis unter das Südprofil ausdehnt, ist ± 3.40 m breit. Die Länge in seiner ausgegrabenen Fläche beträgt ± 3.80 m. Die unterste Lage einer schwachen, nur 0.20 m breiten Trennwand aus kleinen Bruchsteinen grenzt diesen großen Raum im Norden zu der Terrassenkante hin ab. Die nordsüdlichen Seitenmauern setzen sich hinter der Trennwand noch ± 0.70 m fort. Zwei kleine Kammer M2-3 füllen beidseitig die freie Fläche an diesen Mauervorsprüngen aus. Ihre Seitenmauern waren ebenfalls aus nur kleinen Steinen hochgezogen. Im Norden, gleich hinter den kleinen kastenartigen Räumen M2-3, zeichnen sich auf dem Felsen, auf der Schlußlinie der Seitenmauern, auf der eine kräftige Quermauer zu erwarten wäre, vier sogenannte Pfostenlöcher ab (Abb.17).

Der Fußboden des Raumes M1, der vor allem in dem südlichem Abschnitt in voller Höhe erhalten ist, war in verschiedenen Zeitabständen mehrfach erhöht und aufgefrischt worden. Die Haupteuerungsphasen sind aus den Auffüllschichten zwischen den Lehmauflagen für die Begehungsflächen klar zu ermitteln (Abb.19). Ohne Zweifel betonen nicht weniger als 15 Lagen von erneuertem Estrich den langen Bestand dieser Siedlung. Hier wie in den benachbarten Räumen schließen sich die Fußböden sauber an die Innenwände der Mauer an, welche teilweise mehrere bis zu 2-3 mm dicke Schichten von farblosem Verputz aufweisen.

Ein hufeisenförmiger Kuppelofen (Tn. 1) und eine runde Herdstelle (Oc. 1) in der Südhälfte des Raumes, die beide wie die Verputzschichten an den Wänden und Fußböden mehrere Erneuerungsphasen aufweisen, gehören auch hier zum üblichen Inventar. Der Kuppelofen lehnt sich an die lange Ostmauer an. Der Rundherd mit einem Gesamtdurchmesser von ± 1 m liegt zentral im Raum. Ein Hort von 9 Hörnern ± 0.60 m südwestlich der Herdstelle scheint nach den umliegenden Gefäßfragmenten zu schließen in einem großen Topf aufbewahrt gewesen zu sein (Abb.20). Wozu diese Hörner gedient haben könnten, ist noch offen.

Der Fußboden von M1 ist im Norden in Wind- bzw. Wellenrichtung stufenartig weggeschwemmt worden. Hier im Rauminnen an der Nordostecke steckt eine grob behauene ± 45 cm lange Steinplatte in einem Abstand von ± 50 cm vor der Trennwand, im rechten Winkel zu der Seitenmauer (Abb.3). Diese Steinplatte ist in die unteren Schichten der Bodenauffüllung

eingelassen und wird von einigen Steinen abgestützt. Eine ähnliche Steinplatte wurde in der Raumfüllung des blockierten Aufweges auch als Raumteiler beobachtet. Ein annähernd kreisrunder hohler Ring, der aus kleinen faustgroßen Steinen zusammengesetzt war, stellte in diesem nördlichen Raumabschnitt auf dem Fußboden vor der Trennwand eine weitere bemerkenswerte Erscheinung dar. Ob dieses Gebilde von ± 15 cm Durchmesser auch ein Pfostenlager darstellt, ist noch zu klären.

Wozu die beiden Kammer M2-3 gedient haben könnten (Abb.17), ist nicht leicht zu beantworten. Die größere Kammer M2 (± 0.75 m x 2.00 m), die stark zerstört ist, erlaubt in dieser Hinsicht keine sinnvolle Aussage. Von der kleineren Kammer M3 (0.60 m x 1.50 m) dagegen ist nicht nur ein erheblicher Teil der Außenwand, sondern auch ein Teil der Raumfüllung mit eingelagerten stark verbrannten Tierknochenresten erhalten geblieben. So ermöglicht dieser Befund -mit einigen Vorbehalten- die Auslegung der kleinen kastenartigen Anbauten als Vorratskammer oder als Lagerräume.

Der Raum M1, der die Südostecke der Fläche 4 J einnimmt, ist nach dem gleichen Prinzip wie der große Raum in 4 K gestaltet (Abb.3.18). Eine runde Herdstelle vom üblichen Typus, die über die Hälfte unter der Schnittkante verborgen ist, krönt auch hier den südlichen Raumabschnitt. In der oberen Raumverfüllung östlich dieser runden Herdstelle wurde eine kleine Tierfigur (3.30 x 2.20 x 1.30 cm) aus gebranntem Ton gefunden. Der Fußboden des Raumes, der mehrere Erneuerungsphasen aufweist, ist vor allem in diesem Bereich in seiner Gesamtstärke und gut erhalten zutage getreten. Zwischen zwei Fußbodenlagen wurde eine zylindrische Steinperle gefunden. Die zierliche in der Mitte durchbohrte Perle (0.40 x 0.27 cm), ist aus einem türkisfarbenen Stein hergestellt. Ein ± 1 m langes Mauerstück grenzt an der nordöstlichen Raumecke vermutlich eine kleine Zelle (± 1.00 m x 2.00 m) ab (Abb.18). Dieser kurze in Nordsüdrichtung verlaufende Mauerstumpf weist eine Breite von einem Stein auf und ist leicht aus der Flucht geraten. Er ist wie die Steinplatte in der Fläche 4 K in die unteren Lagen des Fußbodens eingebettet bzw. vorgesetzt und läuft direkt auf die Nordwand zu. So wird die Grundfläche dieser von dem Hauptraum abgetrennten kleinen Zelle durch das kurze Mauerstück und durch die nordwestliche Raumecke vorgegeben. Ihre Südmauer fehlt. Ob diese Kammer ursprünglich mit einem künstlichen Fußboden versehen war oder nicht, ist aus dem Baubefund nicht klar zu ersehen. Drei sogenannte Pfostenlöcher im steinernen Grund der viereckigen Zelle und ein viertes nördlich von dieser, außerhalb der Kammer gelegen, runden auch hier das gewohnte Bild ab (Abb.18). Bei dem vierten Pfostenloch sind an der Felsoberfläche (± 20 x 20 cm Bearbeitungsspuren in Form von seichten konischen Einbohrungen von ± 1 -2 cm Durchmesser zu beobachten. Bearbeitungsspuren gleicher Art wurden auch auf einem Bruchsteinfragment von mittlerer Größe festgestellt. Dieses war südlich der Zelle auf der Linie der fehlenden Südwand in die unteren Fußbodenschichten fast senkrecht, mit der bearbeiteten Fläche nach oben eingelassen.

Ein weit ausgedehntes Wohnhaus (± 6.00 m x 6.50 m) nimmt mit fünf Räumen (M2-6) die Osthälfte des Quadrates 4 J und einen Teil des Quadrats 4 I ein (Abb.7). Im Norden ist das Gebäude stark erodiert, und eine breite Furche durchzieht unter dem weggeschwemmten Gebäudeversturz die Fläche mit seitlichen Abzweigungen von Norden nach Süden (Abb.7). Nach den drei aneinandergereihten großen Räumen, die in den östlichen Bereichen der nördlichen Hochterrasse beobachtet wurden, kehrt mit diesem Gebäude der Mehrraumplan der Ostterrasse wieder (Abb.3). Im Süden entlang der Schnittkante erstrecken sich zwei schmale Räume M5 und M6, die sich unter dem zentralen Hügel fortsetzen. Der Raum M6 ist nur ± 2.00 m breit

und nordöstlich angelegt. Das Nachbarzimmer im Westen ist dagegen westöstlich orientiert, und seine Länge beträgt ± 3.75 m. Die Nordwestecke des Raumes M6 wird von einem hufeisenförmigen Kuppelofen und von einem kleinen Gluthalter aus Lehm eingenommen. Die Kammeröffnung des Ofens (Tn.1) blickt nach Osten. Der kleine, annähernd hufeisenförmige Glutbehälter (± 30 cm x 35 cm) mit breiter Randleiste, der an die Nordwand angelehnt ist, schließt sich dem Ofen im Osten an. Auf der gleichen Achse wie der Kuppelofen und ± 1.00 m östlich davon ragt ein Pfostenloch aus dem Fußboden heraus. Weiter östlich an der gegenüberliegenden Ecke befindet sich ein großer Reibstein mit leicht einziehender Arbeitsfläche (Abb.3). Vor dem Glutbehälter lagen Bruchstücke von Tongefäßen verstreut. Im Gegensatz zu dem dünn aufgetragenem Fußboden sind die Innenwände des Raumes mehrfach und dick verputzt. Im Norden vom M5 werden in der Parallelfolge, zwei weitere gleichgroße Räume (M3-4) unterschieden. Diese Räume (± 1.90 m x 4.50 m) werden durch eine schwache Querwand, die nur im Westen als ein ± 1.50 m langer Maurstumpf erhalten ist, voneinander getrennt. Diese schmale Trennwand weicht in der Bauweise von der üblichen Trockenmauermethode ab. An dieser Mauer sind kleine handliche Steine, mit höchstwahrscheinlich aus Lehm bestehendem Mörtel, aufgeschichtet. Von dem mittleren Raum M3 ist ein Teil der Fußbodenfüllung entlang der Rückwand in gutem Zustand erhalten geblieben. Hier befanden sich auf dem Fußboden, neben dem noch intakten Schädel eines kleinen Raubtieres, in zwei Gruppen Hörner von Tieren in situ. Vor allem scheint hier ein Hörnerpaar, die natürliche Stellung am Kopfe eines Tieres nachahmend, bewußt niedergelegt worden zu sein (Abb.21).

Über den Ostflügel des Gebäudes, der die Fläche hinter den Räumen M3-4 (± 1.45 m x 4.50 m) einnimmt, ist relativ wenig zu berichten. Hier zog vermutlich eine ± 0.40 m breite Trennwand, die nur in einer Länge von ± 1.15 m aufgenommen werden könnte, in der Fluchtlinie der großen Furche nach Norden hin, und grenzte die beiden Kammer M3-4. von dem langen Ostraum M2 ab. Dieses Mauerstück ist in der gleichen Lehmmörtel-Bauweise wie die schmale Querwand erbaut und ist auch beidseitig mehrfach dick verputzt.

Vermutlich war das Gebäude im Norden von einer starken Außenwand begrenzt. Diese 0.75-0.80 m breite Mauer, die nur ansatzweise in einer Länge von ± 4.50 m erhalten ist, besteht aus zwei Steinbreiten und benutzt die breite Furche in ostwestlicher Richtung als Fundamentgraben (Abb.3.7). An dieser Mauer ist die der Terrassenkante zugekehrte äußere Steinreihe aus größeren Bruchsteinblöcken zusammengesetzt, was ihr das Aussehen einer Umfassungsmauer verleihen. Nachdem sie im Westen den Fußweg erreicht und den Aufweg zu diesem abgeschildert hat, wendet sie sich mit einem scharfen Knick von $\pm 90^\circ$ nach Norden hin und überbrückt so die Terrassenkante.

Im Westen des Fünfraumhauses wird die Schnittfläche 4 I von dem in einer späteren Phase blockierten Fußweg und von einem stark erodierten Gebäudekomplex eingenommen (Abb.16). Der schmale Fußweg, der einst als die zweite Passage den Zugang zu dem Akropol-felsen freiließ, scheint in einer jüngeren Phase als neuer Wohnbereich in die Siedlungsstruktur integriert worden zu sein. Unter dem üblichen Hangversturz war hier die eigentliche Korridorfüllung von einem leicht rötlich verfärbtem Brandversturz aus verflossenem Lehm, der stark mit Tierknochen durchsetzt war, versiegelt. In dieser Versturzschiicht wurden zum ersten Mal auch Beispiele von verkohltem Holz, darunter ein Stück Rundholz von ± 10 cm Durchmesser geborgen. Diese enge Gasse (0.95 - ± 1.30 m) wurde nach der Beseitigung des Brandversturzes, der vermutlich von einem höherliegenden Gebäude unter dem Wohnhügel stammt, in einer Länge von ± 6.00 m untersucht. Der Innenraum des Aufwegs ist in einer jüngeren Phase durch schmale sekundäre

Querwände, die ohne große Sorgfalt aus schotterähnlichem Material hochgezogen waren, in drei kleine Zellen M1,3,4 unterteilt (Abb.3.16). In diese Mauern sind auch einige Reibsteinfragmente, wohl aus dem Siedlungsschutt, verbaut. Die Oberfläche der sekundären Bodenfüllung innerhalb des ehemaligen Fußweges weist vom Süden nach Norden (Δ 1101.85-1100.81 m ü. M.) ein Gefälle von ± 1.00 m auf. Die Querwand zwischen den Kammern M3 und M4 besteht aus einer ± 0.70 m langen grobbehauenen Steinplatte. Diese Steinplatte ist mit Hilfe von kleineren Steinen in den zum Zweck des Gefäl্লাusgleichs höher aufgefüllten Lehm Boden der Zelle M3 verankert. Obwohl außer einer kleinen durchbohrten zylindrischen Perle (1.10 x 0.60 x 0.35 cm), die aus honigfarbenem, halb durchsichtigem Stein hergestellt ist, keine besonderen Funde sowohl in den Raumfüllungen, als auch auf den Fußböden der Zellen registriert wurden, fielen zwei stark zerstörte Ofenstellen besonders auf. Beide waren jeweils ± 0.60 m über der eigentlichen Fußbodenniveau aufgestellt. Die eine in M1 (Tn.2) war an der nordöstlichen Raumecke an die Ostwand und die andere in M3/Tn.1 an der südwestlichen Raumecke an die Westwand angelehnt. Eine höhere Begehungsfläche, die mit diesen Herdstellen in Verbindung gebracht werden könnte, wurde jedoch nicht beobachtet.

In welchem Verhältnis die Zellen (M1,3,4) zu dem benachbarten Gebäudekomplex im Westen stehen, ist aus dem Baubefund noch nicht klar zu ersehen. Eine ± 0.50 m breite Mauer in Lehmmörtelbauweise bildet im Süden die Seitenwand eines 3.00 m breiten Raumes (M2) zur Gasse hin. Die 0.40 m starke Innenwand bzw. die Nordwand dieses Raumes mündet im Westen in den T-förmigen kurzen Ansatz einer weggeschwemmten Außenwand (Abb.3.16). Entlang der noch vorhandenen Hauptmauern blieb ein Teil der dünnen Begehungsfläche aus Lehm, die auf dem felsigen Untergrund auflag, von der Vernichtung der jährlichen Überflutungen verschont.

Im Norden schließt sich dem Raum (M2) ein weiterer Raum (M5) an. Hier, gleich hinter der östwestlichen Trennwand befinden sich in geringem Abstand voneinander eine runde Herdstelle und ein Kuppelofen. Die Grundfläche dieses Raumes M5 wird durch eine schräge in Südwest-nordost Richtung verlaufende Rinne in zwei Hälften geteilt. Der Kuppelofen Tn.3, der vier übereinanderliegende Ofenplatten aufweist, benutzt die seichte Kuhle entlang dieser Rinne als Lager. Zwischen dem Kuppelofen im Westen und der runden Herdstelle bzw. Ofenstelle (?) Oc.1 im Osten schiebt sich ein unförmiges Gebilde, welches aus kleineren Bruchsteinen und großen Steinblöcken besteht, in nordsüdlicher Richtung ein. Die kleinen Steine dürften mit Vorbehalt als Reststeine der zerstörten Ofenummantelungen ausgelegt werden. Nach einer schmalen Zäsur von 0.15 m scheint dieses unförmige Gebilde jedoch Gestalt anzunehmen und setzt sich als die unterste Lage einer breiten Mauer (± 0.70 m) nach Norden fort. Dieses kurze Mauerstück (± 0.90 m) besteht aus vier stattlichen Steinblöcken, die an den Außenkanten wohlbehauen sind (Abb.3.16). Nach einer weiteren Unterbrechung von ± 0.30 m wird der Raum M5 von einer ostwestlich ausgerichteten, ebenfalls sekundären Quermauer aus großen Steinblöcken begrenzt. Der Westflügel des Gebäudes westlich der schrägen Rinne ist nicht mehr vorhanden (Abb.16). Die weiteren Wohnhäuser auf der nördlichen Hochterrasse sind in den kommenden Kampagnen zu untersuchen.

Die keramischen Funde

Handgemachte bzw. frei aufgebaute polierte Ware (WI), bildet die Hauptgruppe der keramischen Funde aus den 1996 untersuchten Flächen des Güvercinkayası (Abb.20:3-5; 21:1-3; 22:1.4-10; 25-27). Obwohl schwarz (Abb.25.2628 unten) und grau (Abb.27) die dominanten Farbvarianten dieser in verschiedenen Anteilen mit Häcksel und mit mineralischen Zuschlägen gemagerten Gattung sind, treten häufig auch außen schwarze und innen rote oder beigefarbene Exemplare auf. Als weitere gängige Oberflächenfarben sind, in verschiedenen Schattierungen von dunkel über rötlich bis hell, Braun- und Beigetöne zu nennen. Gefleckte oder geschmauchte Oberflächen sind ebenfalls vorhanden. Die durch die Machart bzw. durch die Aufbaumethode der Gefäße durch Tonwülste bedingten, oft welligen Oberflächen fühlen sich glatt an. In der Regel sind die Gefäße gut geglättet und anschließend glänzend streifig poliert. Abgesehen von einzelnen größeren Partikeln, die von pflanzlichen und mineralischen Beimengungen herrühren, sind die Magerungskörner bedeckt. Bei den einfarbigen Gefäßen haben alle Brüche einen nicht oxydierten, sehr breiten Kern. Aber bei den Erzeugnissen, die außen schwarz und innen hellfarben sind, wird an den Brüchen die Farbe der Oberflächen wiederholt, so daß an manchen Beispielen durch eine klare Linie getrennte oxydierend und reduzierend gebrannte Wandungshälften entstehen.

Ware I, die sich durch Hochformen mit einfach gebildeten Rändern auszeichnet, weist an vielen Beispielen am Bauch oder am Halsansatz scharfe Umbrüche auf (Abb.20:2; 25). Einzeln oder paarweise angeordnete große konische Griffplatten unterhalb des Randes (Abb.20:3), kleine oder große unter dem Rand quer oder senkrecht angesetzte Schlaufenhenkel (Abb.22:4; 21:3; 28 unten) oder vom Bauch bis zum Rand reichende schwere Bandhenkel dienen als übliche Tragevorrichtungen. Neben diesen fallen unterständig am Bauch- oder oberständig am Halsumbruch auf den Gefäßkörper applizierte stumpfe Knubben besonders auf. An solchen Knubben sind die breiten erhabenen Knubbenansätze sorgfältig abgeflacht. Neben den dominierenden Hochformen bzw. Vorratsgefäßen tauchen gelegentlich auch halbkugelige oder kalottenförmige kleine Schalen auf.

Das Randstück eines schwarz polierten Napfes, auf den ein Stierkopf mit langen Hörnern appliziert ist, gehört zu den schönsten Funden der WI (Abb.20:5; 26). Weitere Verzierungselemente bestehen aus einfachen Reliefbändern (Abb.20:4; 21:2), in den Gefäßkörper eingetieften, horizontal oder schräg angeordneten V-Muster Reihen (Abb.22:5-7; 27.28 unten), eingestochenen Punkten, flachen Rillen (Abb.22:8.9) und deren Kombinationen (Abb.21:3; 22:1.10).

Die nächsten Vergleichsstücke einer ähnlichen Ware in Zentralanatolien sind aus den chalkolithischen Schichten von Alishar Höyük⁵ und aus dem Köşk Höyük bei Niğde⁶ belegt. Nach Esin zeigt die unverzierte Variante "a" der handgemachten, innen und außen gut geglätteten dunklen "Ware 1" von Gelveri, gewisse Ähnlichkeiten mit WI vom Güvercinkayası⁷.

⁵ E. F. Schmidt, *The Alishar Hüyük. Seasons of 1928 and 1929 (Part I)*, 1932, 45, Abb. 49-51; H.H. von der Osten, *The Alishar Hüyük. Seasons of 1930-32 (Part I)*, 1937, Abb. 69-74.

⁶ in Privatgesprächen mit Frau Prof. Dr. Aliye Öztan; für weiteres siehe: U. Silistreli, *VII. Kazı Sonuçları Toplantısı* (1985) 129-141; *VIII. Kazı Sonuçları Toplantısı* (1986) 173-179; *XI. Kazı Sonuçları Toplantısı* (1989), 91-97; *Bulleten* LIII, 1989, 361-374, 497-504, Taf. I-V.

⁷ siehe für Gelveri U. Esin, *Anatolica* XIX (1993) 47-56.

Eine zweite, monochrome, glänzend polierte Ware (W II) in Schwarz- und Brauntönen, die keine starke Anhäufung wie W I aufweist, ist im Ton in erster Linie mit feingeschnittenem Häcksel gemagert. An zweiter Stelle ist der Masse fein bis mittelkörniger Sand beigemengt. Einige Steinpartikel, Kalk- und Glimmerteilchen gehören ebenfalls zu den häufigeren Zuschlägen. Diese Ware (W II), konnte nur an Hand einiger dünnwandiger Schalenfragmente, die unterhalb der Randzone mit einer Reihe von locker aneinandergereihten horizontal angeordneten einfachen V-Muster verziert sind, belegt werden (Abb.22:2-3; 28 oben).

Eine dritte Warengruppe (W III) mit aufgerauhter Oberfläche scheint für die vorläufige Datierung des Fundplatzes von großer Bedeutung zu sein. Diese Gruppe wird hauptsächlich durch einfache, meist konisch gebildete Schalen vertreten (Abb.20:1; 29). Zu den Haupteigenschaften dieser Schalen gehört die hellrötlichbraune bzw dunkelziegelrote Tonfarbe. Alle Gefäße haben vor allem unterhalb der Randzone eine sehr rauhe und oft mit Besenstrich versehene Außenfläche. Sämtliche Innenflächen, einschließlich der Randpartie außen, sind dagegen sorgfältig geglättet. Die Gefäßwandungen weisen im Profilverlauf in bestimmten Abständen und häufig in Verbindung mit Fingereindrücken von außen, Verjüngungen auf. Die Tone dieser reduzierend gebrannten Ware III sind stark mineralisch gemagert. Eine relevante Gattung wird in Ost- und Südostanatolien unter verschiedenen Bezeichnungen wie "Coba-Ware", "Coba-Bowls", "flint scraped bowls", "Grass-wiped Ware", "simple straw wiped buff bowls" genannt⁸. Mellink führt in Tarsus (30.50-30.00 m) ähnliche Schalen als sogenannte "standard late Ubaid bowl auf"⁹. Ob die Schalen der Ware III auf dem Güvercinkayası in Zentralanatolien, um in der Terminologie des Südens zu verharren, auch in eine der letzten Obed- oder aber in die darauffolgende der frühen Urukphase entsprechenden Zeitstufe zu datieren sind¹⁰, soll noch einer gründlichen Untersuchung unterworfen werden.

Die bemalte Keramik wird durch das Fragment einer dünnwandigen kalolottenförmigen Schale vertreten, welche auf sorgfältig geglättetem hellem Grund mit feinen Häckselabdrücken in dunkelbrauner matter Farbe ausgeführte geometrische Muster aufweist. Hier werden vom Rand herunterhängende aneinandergereihte große Rhomben, die mit Netzmustern ausgefüllt sind, von zwei breiten Parallelstreifen am Bauchumbruch begrenzt (Abb.20:6). Die leeren Felder bzw. Dreiecke, die zwischen den Rhomben entstehen, werden jeweils von einem soliden Kreis eingenommen. Obwohl für die auswärtigen Vergleiche und für eine plausible Datierung eine

⁸ J. du Plat Taylor u.a., *AAALiv* 24/3.4, 1937, 94ff. 100 Abb. 16,1.2; 18,5; ders. u.a., *Iraq* 12/2, 1950, 94f.99.100; B. Brown, *AnatSt* 17, 1967,132; Vergleichbare Exemplare in Bezug auf ihren rauen Oberflächen bezeichnet als: "flint-scraped bowls" S. Lloyd-F. Safar, *JNES* 2/2, 1943, 153 Taf. 17, Typ 7; 22a,4; J. Garstang, *Prehistoric Mersin* (1953) 174; A.L. Perkins, *Comparative Archeology of Early Mesopotamia* ² (1957) 82; "Grass-wiped Ware" C.A. Burney, *AnatSt* 8, 1958, 159f.; U. Esin in: *Festschrift Bittel* (1983) 184; R. Brandt in: van Loon, *Korucutepe II* (1978) 57; für die detaillierte Beschreibung der Coba-Topf Ware siehe S. Gülçur, *Die chalkolithische Keramik von Norşuntepe* (1988) (unveröff. Diss., Eberhard-Karls-Universität Tübingen), 84ff. 247ff. Abb. 13.29.67-69.78 Taf. 5.6; ders. *Tepecik 8-O Derin Sondajında Ele Geçen Saman Katkılı Hamurlu Mallar ve Duş İlişkileri* (1975) (unveröff. Mag. Universität Istanbul) 52ff. Taf. 10.

⁹ M. Mellink in: H. Goldman, *Tarsus II* (1956) 81.

¹⁰ D. Oates, *Iraq* 37, 1985, 177 Abb.3,44.45; J. Oates in: U. Finkbeiner-W. Röhl (Hrsg.), *Gamdat Nasr Period or Regional Style?* Papers given at a symposium held in Tübingen November 1983 (1986) 249 Abb.3,44.45; Oates-Oates, *Iraq* 56, 1994, 170 und vor allem persönliche Gespräche mit Frau J. Oates bei der Durchsicht des Brak-Materials in Cambridge (Winter 1995). Sie datiert die Coba-Töpfe in die Frühe Uruk Phase. Für Ihr freundliches Entgegenkommen bin ich Frau Oates zu Dank verbunden.

einzigste Scherbe allein nicht herangezogen werden kann, scheint das obedisch anmutende bemalte Exemplar von Güvercinkayası gut in das Bild der konischen Schalen der W III zu passen, und schlägt vermutlich wieder eine Brücke in den Süden¹¹.

A NOTE ON THE OBSIDIAN INDUSTRY OF GÜVERCİNKAYASI

Nur Balkan-Atlı

This small note reflects the first observation of a limited collection of obsidians from Güvercinkayası selected by the excavator.

The sample is too small to have a general idea about the industry. The obsidian is shiny black, homogeneous, rarely with perlites.

The presence of big cortical primary flakes indicates that the raw material was brought to the site in form blocks or tablets and the knapping took place at the site. In spite of the existence of big flakes and long lateral and central blades, the cores are small or exhausted. The cores observed are few. They are blade cores, unipolar or crossed with two striking platforms except a small bipolar core (Fig. 31:6). The butts of the flakes are flat and show scars of direct percussion. In case of the blades, the proximal parts are absent in the sample. The blades are unipolar except one (Fig. 31:2).

Retouched pieces include mostly side scrapers on thick cortical flakes (Fig. 32:1,2), steep retouched blades (Fig. 31:1,2), splintered pieces on flakes or blades (Fig. 31:3). End scrapers on thick flakes (Fig. 31:4) and perforators (Fig. 31:5) are rare.

¹¹ Vor allem für die ostanatolischen bemalten Gattungen der späten Obed- und frühen Urukphasen siehe S. Gülçür, *Die chalkolithische Keramik von Norşuntepe* (1988) 64ff. 94f. 100ff. 245f und für die Malmuster Abb. 15-16.

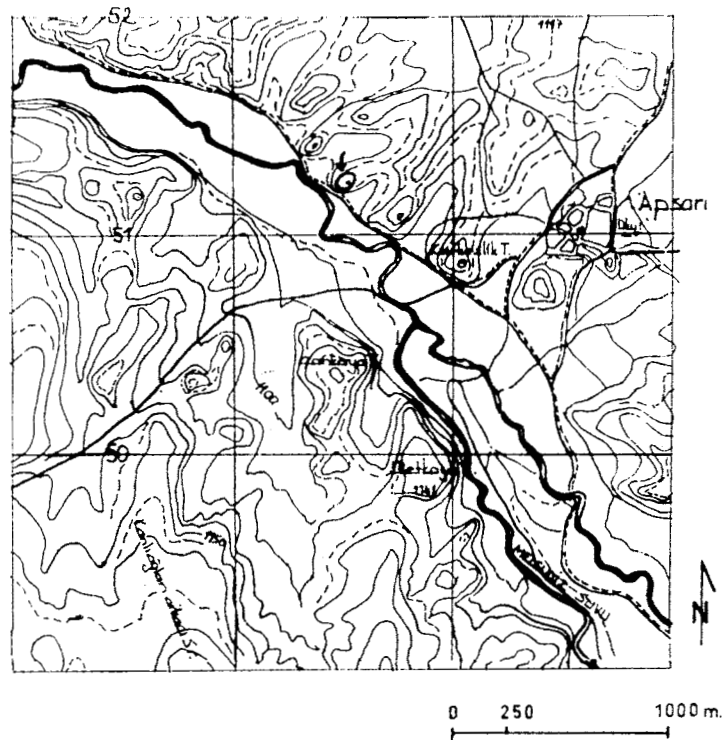


Abb. 1. Lage von Güvercinkaya.

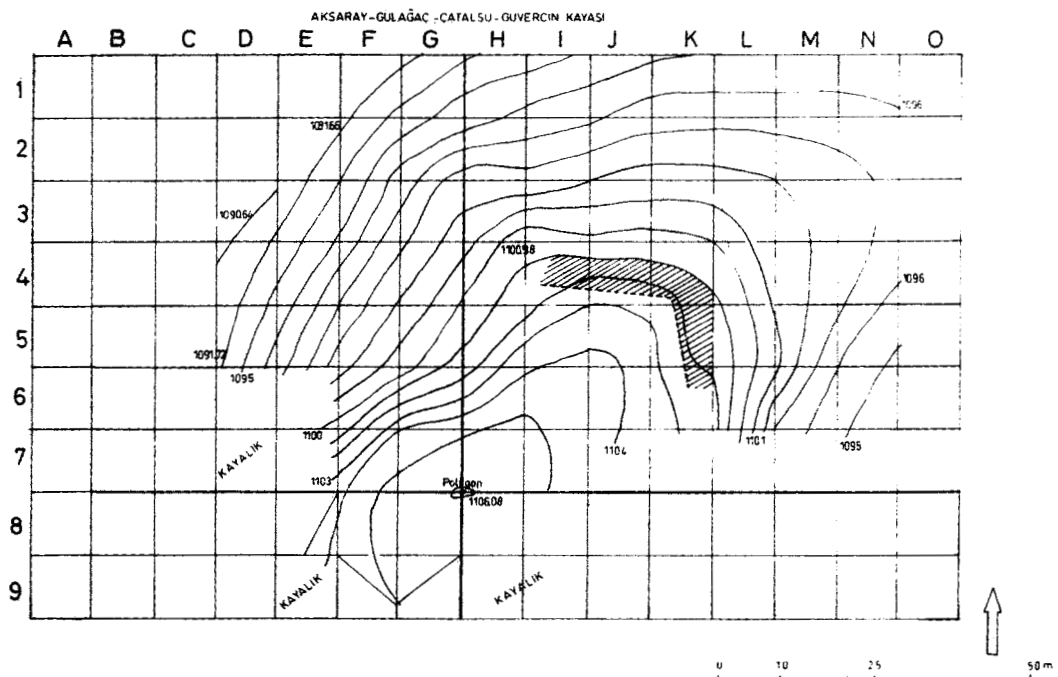


Abb. 2. Güvercinkaya. Topographischer Plan mit Grabungsflächen.

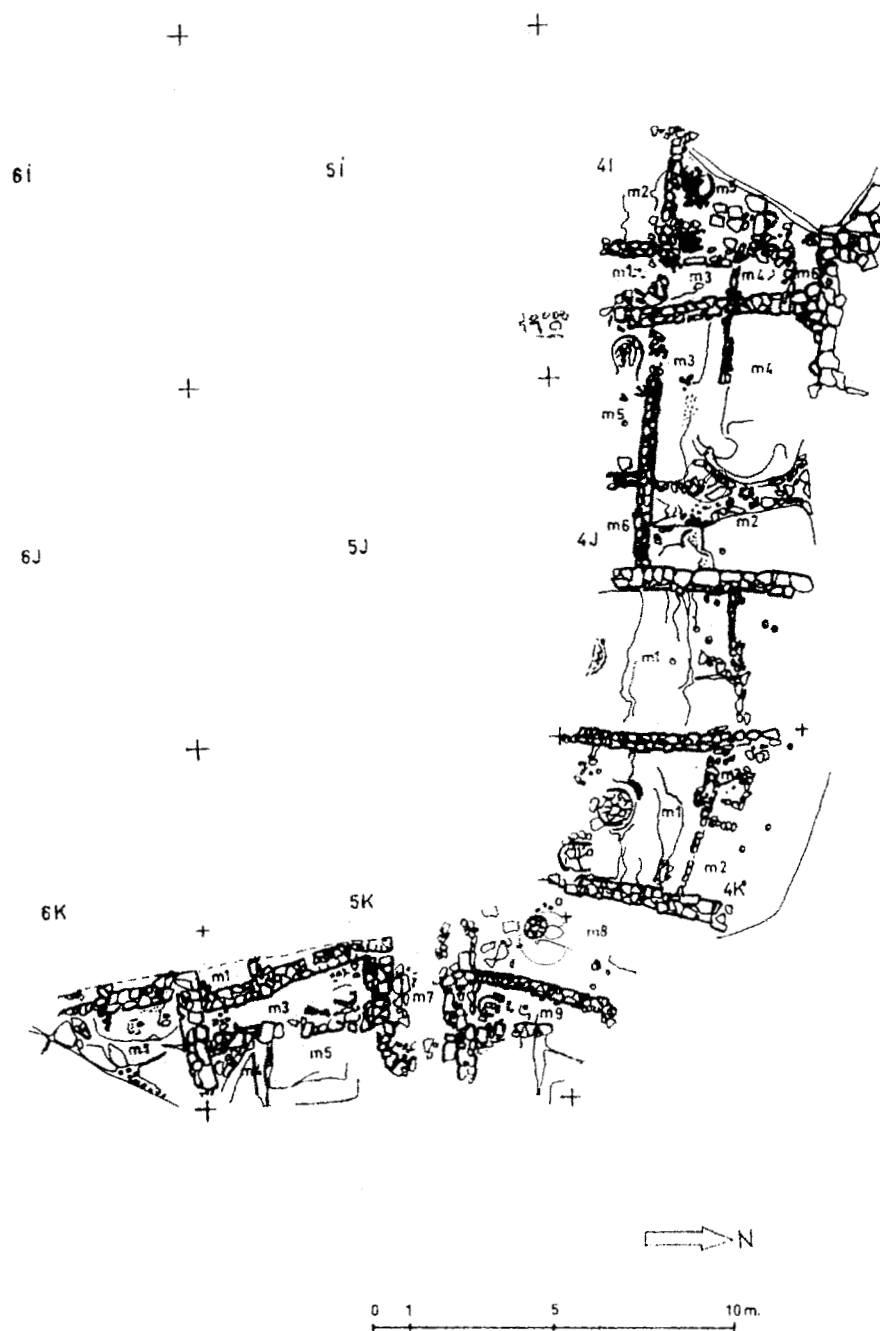


Abb. 3. Güvercinkaya. Schematischer Plan der Bebauung.



Abb. 5. Nordhang, Hochterrasse mit Siedlungsschutt von Osten.



Abb. 7. Schnitt 4 J. Gefurchte Oberfläche des Felsens von Norden.

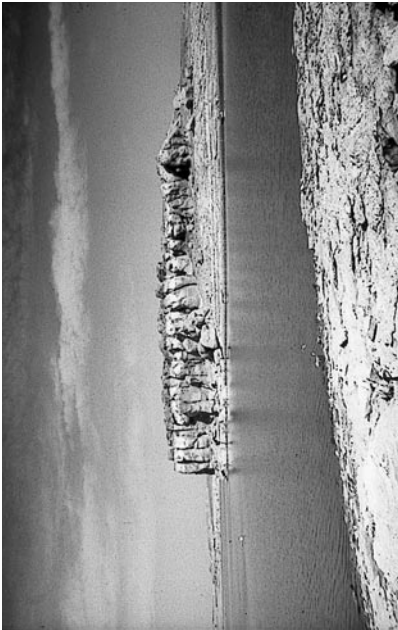


Abb. 4. Güvercinkeyast von Süden.



Abb. 6. Die östliche Hochterrasse und der ansteigende Siedlungshügel von Nordwesten.



Abb. 8. Fläche 4K/Raum M1. Fundumstand, im Vordergrund die unterste Reihe des aufgehenden Mauerwerks, hinten runde Herdstelle und Kuppelofen.



Abb. 9. Schnitt 6 K. Bildmitte: Trennmauer, Absatz im Felsen und diagonale Furche, Bildrand unten ein Pfostenloch.

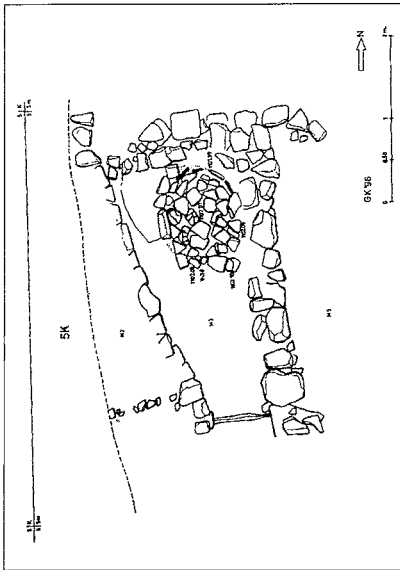


Abb. 10. Fläche 5 K/Raum M3. Tn. 1. Fundament des Kuppelofens aus handlichen Steinplatten.

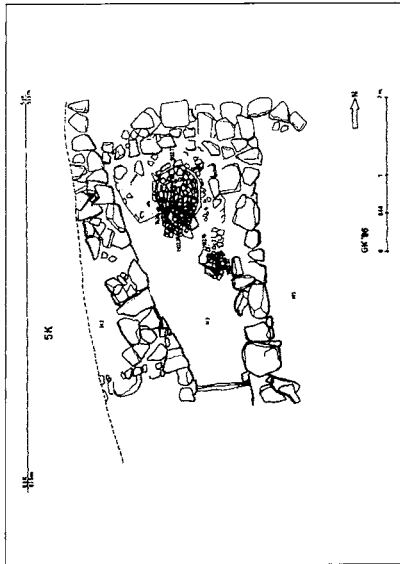


Abb. 11. Fläche 5 K/Raum M3. Tn. 1 und Oc. 1. Scherbenpflasterung.



Abb. 13. Schnitt 5 K/Raum M9. Tn. 2. Gesamtansicht von Norden mit dem Kuppelofen an der südöstlichen Raumecke und Pfostenloch.



Abb. 12. Schnitt 5 K/Raum M9. Tn. 2. Scherbenpflasterung untere Lage.



Abb. 14. Schnitt 5 K/Raum M9. Tn. 2. Ovale Ofenkammer mit in situ Funden.



Abb. 16. Fläche 4 I. Gesamtansicht mit dem blockierten
Aufgang von Westen.



Abb. 18. Schnitt 4 J/Raum M1. Gesamtansicht von Norden mit
Pfostenlöcher.



Abb. 15. Schnitt 5 K/Raum M7. Aufweg, Gesamtansicht
von Osten.



Abb. 17. Schnitt 4 K/Raum M1-3. Gesamtansicht
von Nordosten.

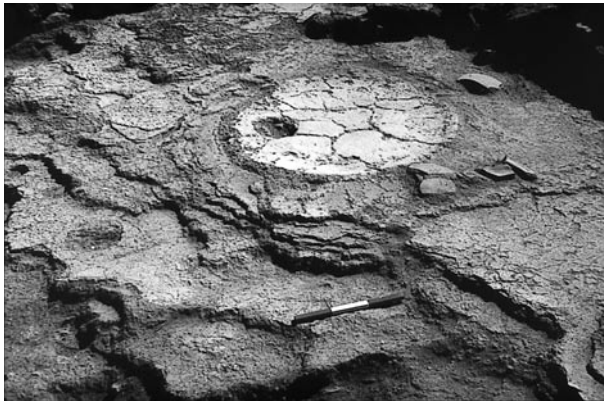


Abb. 19. Fläche 4 K/Raum M1. Oc. 1. Runde Herdstelle und Fußboden mit mehreren Lagen.



Abb. 20. Fläche 4 K/Raum M1. Bild im Vordergrund Hort von 9 Hörnern, hinten verputzte Seitenmauer.



Abb. 21. Fläche 4 J/Raum M3. Hörnerpaar auf dem Fußboden des Raumes.

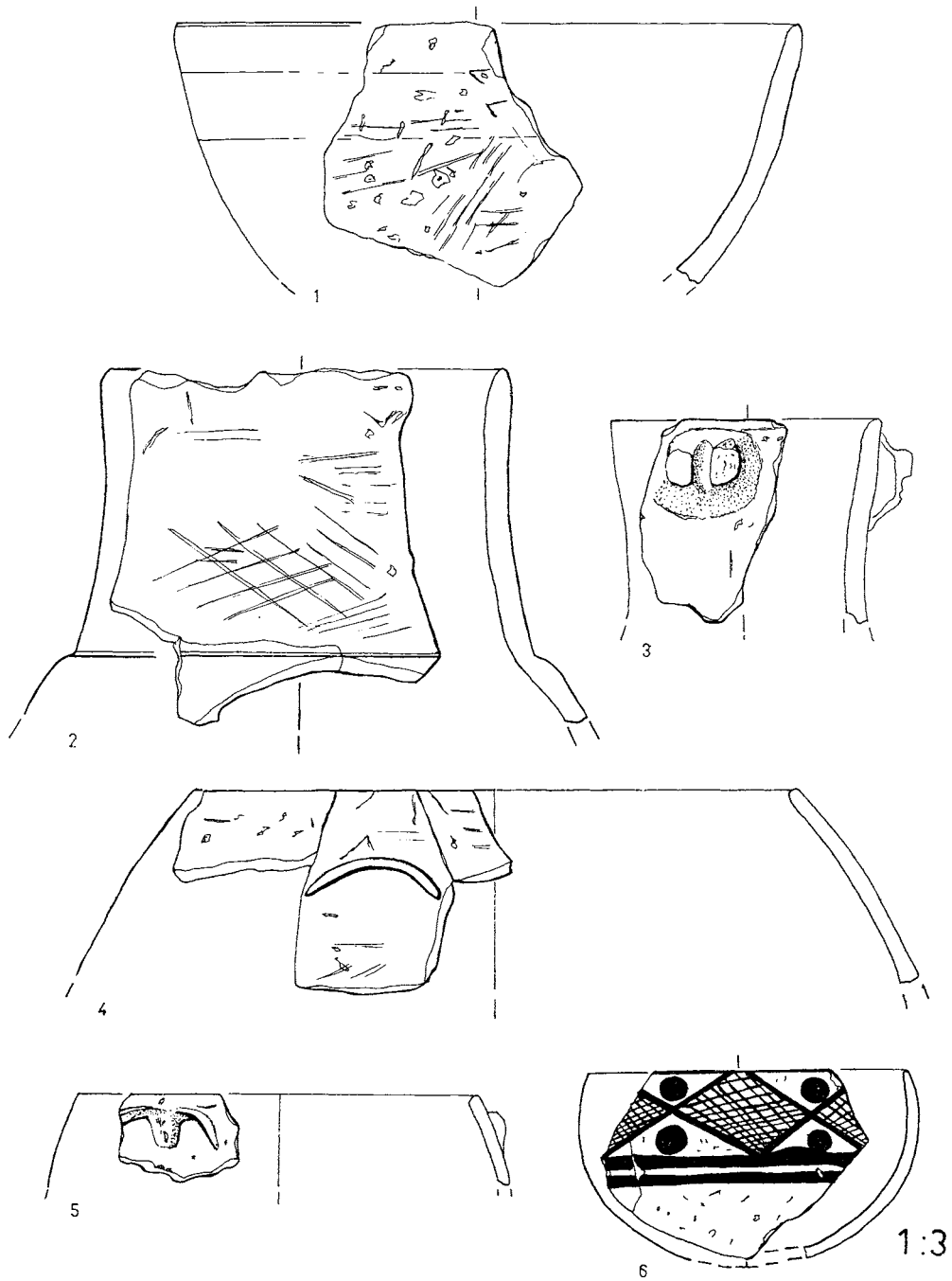


Abb. 22. Keramik. (W III) 1; (W I) 2-5; bemalt 6.

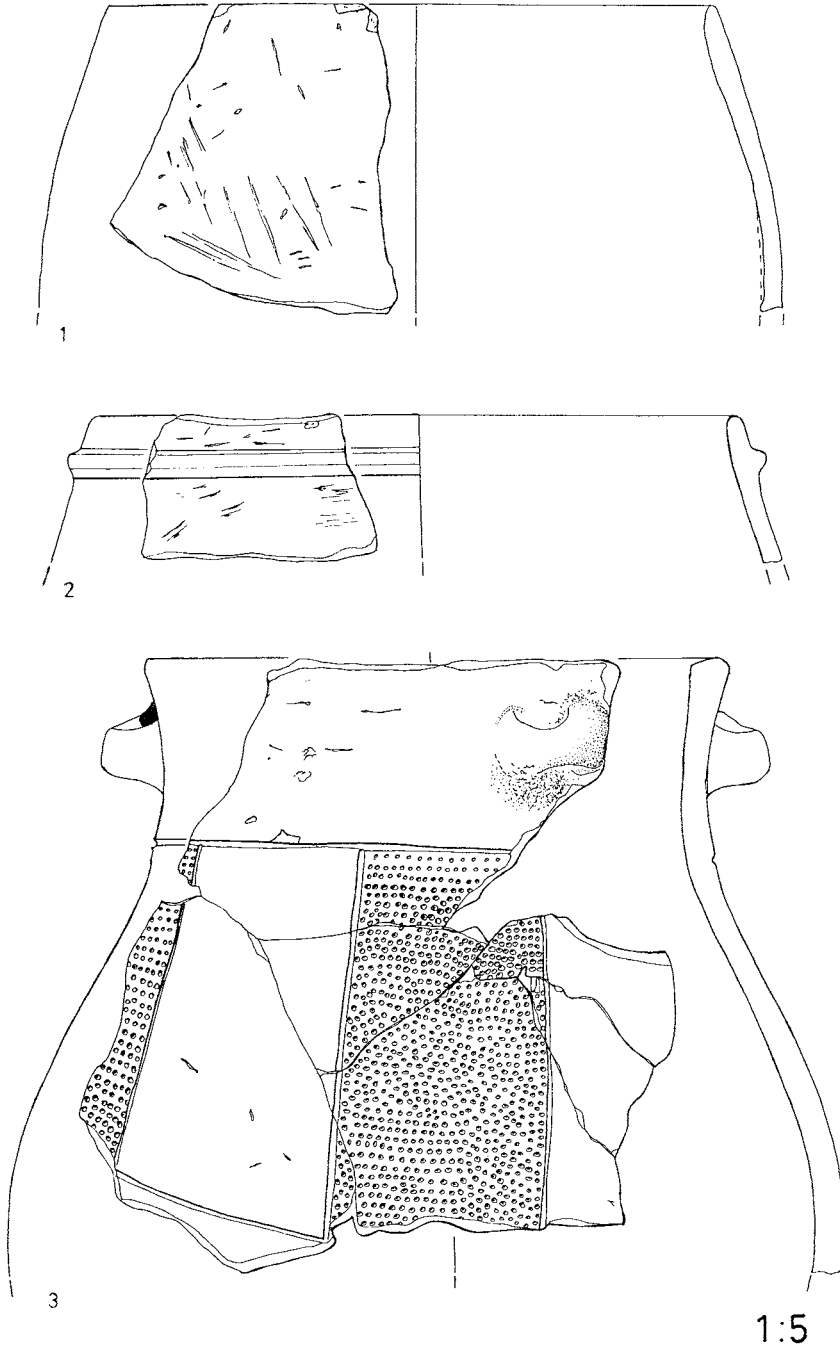


Abb. 23. Keramik. (W II) 1-3.

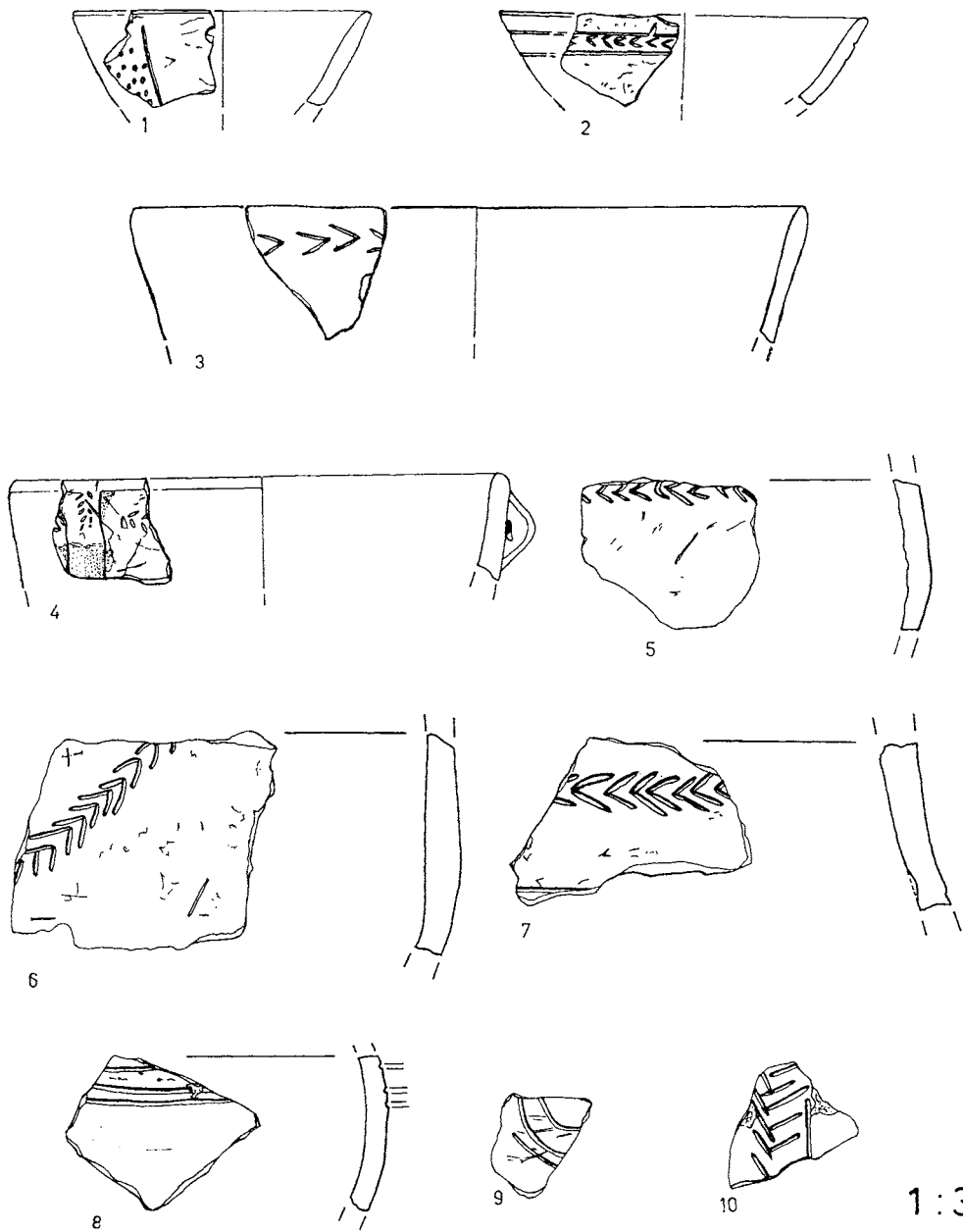


Abb. 24. Keramik. (WI) 1.4-10; (W II) 2-3.



Abb. 25. Keramik. (WI) schwarz poliert mit scharfem Halsumbruch.



Abb. 26. Keramik. (WI) schwarz poliert mit Stieckopfverzierung.



Abb. 27. Keramik. (WI) grau poliert mit eingetieften V-Muster.



Abb. 28. Keramik. Obere Reihe (WII), unten (WI).

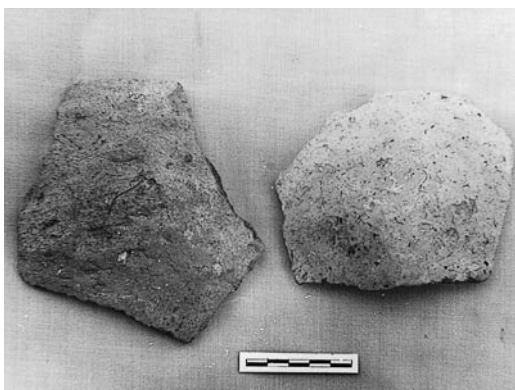


Abb. 29. Keramik. (WIII) konische Schalen.



Abb. 30. Reibstein.

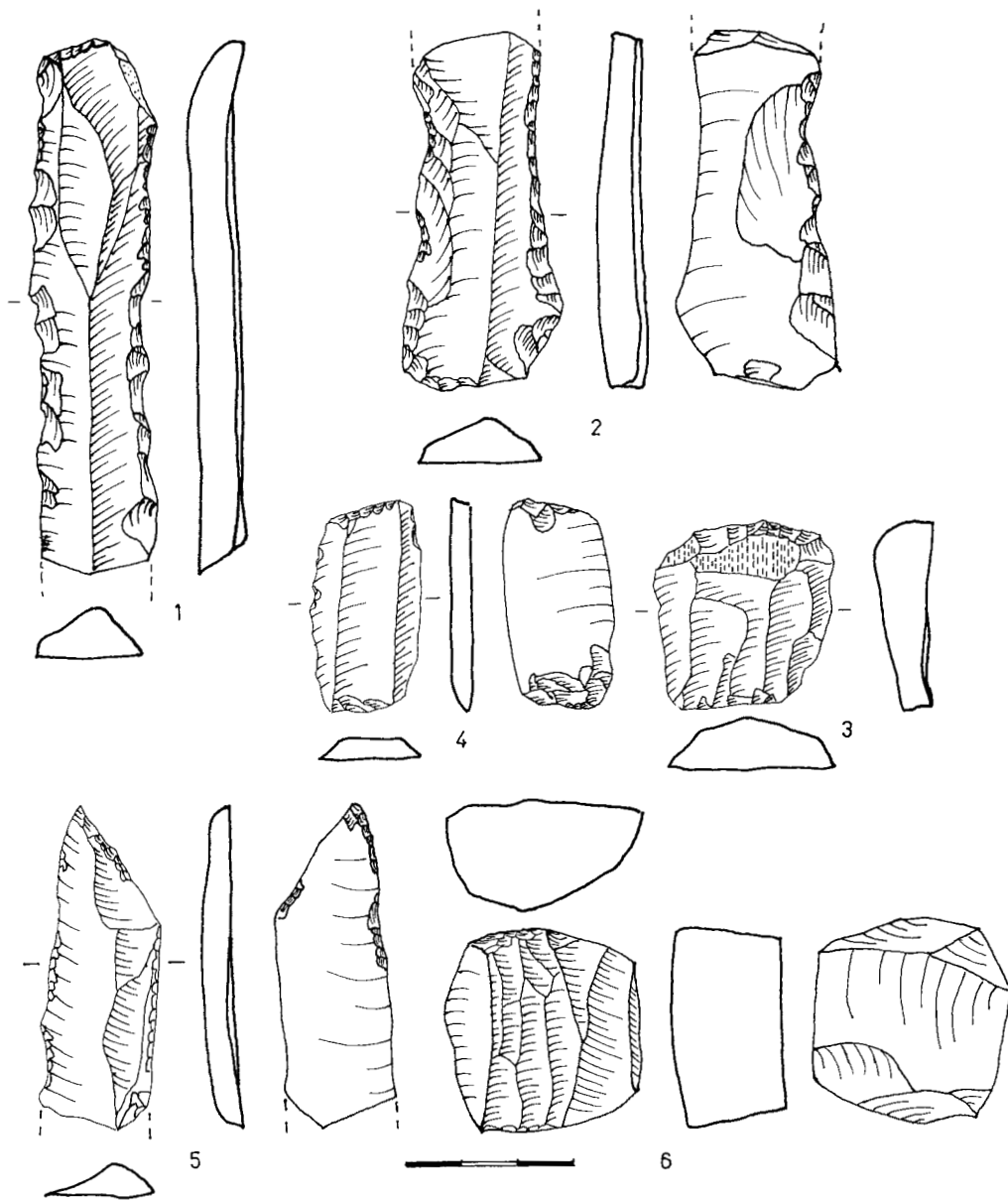


Abb. 31. Obsidian implements of Güvercinkeyası: steep retouched thick blades, 1-2; splintered piece, 3; scraper, 4; perforator, 5; core, 6..

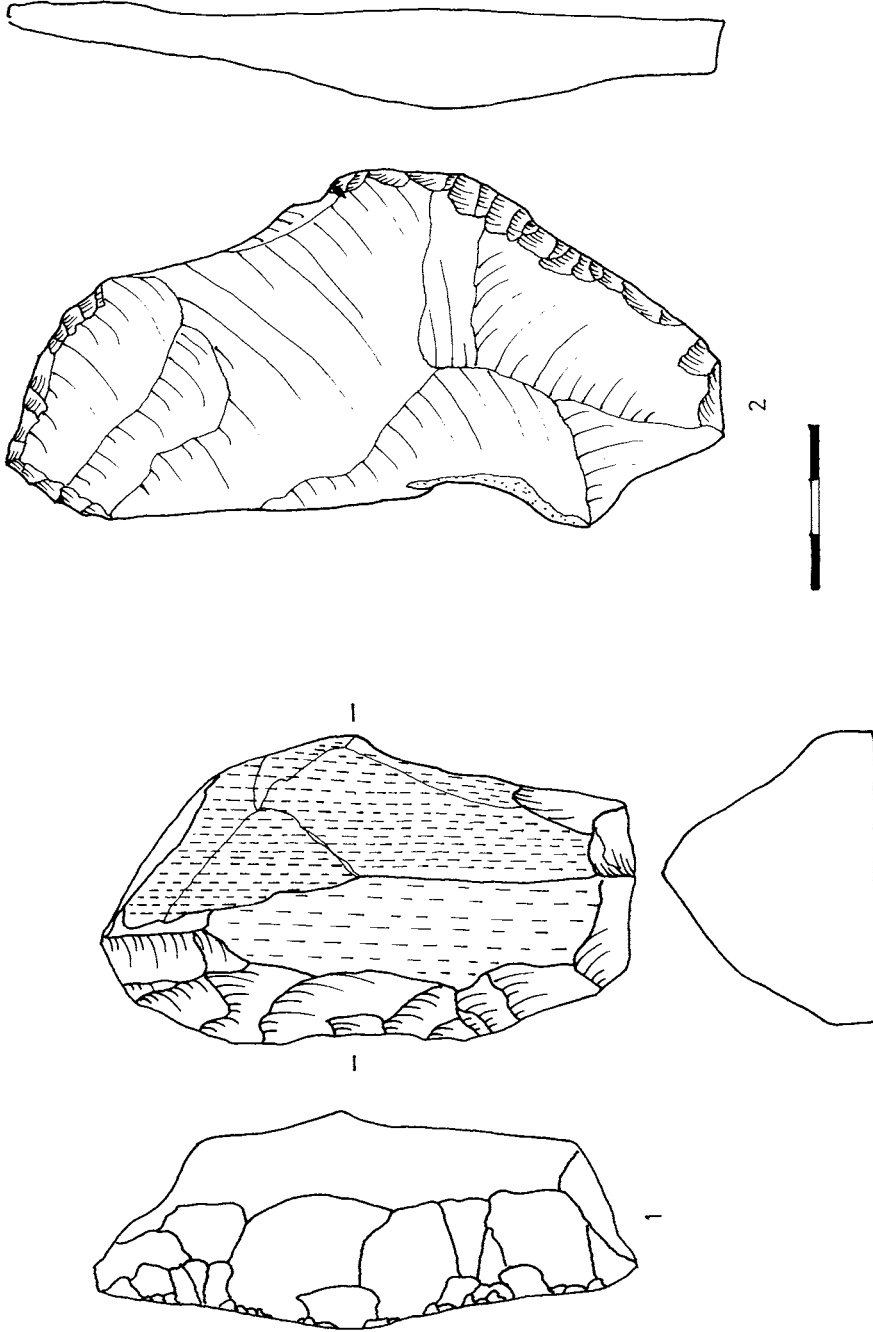


Abb. 32. Obsidian implements of Güvercinkaya: side scrapers on thick flakes.

EXCAVATIONS AT HACINEBİ, TURKEY - 1996: Preliminary Report

*Gil J. Stein, Kenneth Boden, Christopher Edens,
Julie Pearce Edens, Kathryn Keith, Augusta McMahon, and Hadi Özbal*

INTRODUCTION

The fifth field season of the Northwestern University salvage excavations at Hacinebi Tepe, Birecik district, Şanlıurfa province took place from July 10-August 30, 1996, directed by Gil Stein (Northwestern University). The excavations were funded with support from the National Science Foundation, the Kress Foundation, and the generosity of private donors. We wish to express our appreciation to Mr. Mehmet Akif Işık, General Director of the Ministry of Culture's Directorate of Monuments and Museums for permission to conduct this research. We thank Mr. Adnan Mısır, Director of the Şanlıurfa Museum for his administrative assistance, and Mr. Mehmet Yücel Kumandaş (Rize Museum), who served as representative of the Directorate of Monuments and Museums. We also gratefully acknowledge Mr. Kemal Işık, the Muhtar of Uğurcuk village, for his hospitality and assistance in conducting excavations at Hacinebi.

The project staff consisted of: Ms. Sevil Baltalı (University of Chicago), Mr. Adnan Baysal, Ms. Lauren Bigelow (Northwestern University), Mr. Kenneth Boden (University of Arizona), Ms. Tania Collas, Ms. Güner Coşkunsu (Istanbul University), Dr. Christopher Edens (assistant director), Ms. Julie Pearce Edens (University of Pennsylvania), Mr. Fokke Gerritsen (University of Amsterdam), Ms. Kathryn Keith (University of Michigan), Ms. Katherine May (Buffalo State College), Dr. Augusta McMahon (Cambridge University - assistant director), Ms. Rana Özbal (Bates College), and Mr. Mark Schwartz (Northwestern University). A team of 36 workers from the village of Uğurcuk (Hacinebi) assisted the project staff in the excavation and artifact processing activities.

The 1996 field season included excavation, conservation, and laboratory analyses aimed at reconstructing the chronology and economic organization of the site. Results are presented below in the following sections of this report. The first part by Stein presents an overview of the stratigraphy, architecture, and main finds from the Late Chalcolithic and Early Bronze I occupations at Hacinebi. The following section by Augusta McMahon discusses the Achaemenid/Hellenistic remains, with a special focus on the unusual 5th cent. BC tomb in operation 13. Christopher Edens outlines the results of analyses of Late Chalcolithic chipped stone tool production and use.

Ongoing analysis of ceramics have focused on two complementary aspects of the Hacinebi assemblage. Kenneth Boden's section of this report reconstructs Local Late Chalcolithic ceramic production technology, with a particular emphasis on determining whether Local Fine wares were manufactured by hand or on the potter's wheel in the early precontact phase A. Julie Pearce

Edens presents a detailed examination of phase B ceramic chronology using a microstratigraphic analysis of 9 building levels in operation 14. This section also describes the Early Bronze I ceramics from the cist tombs found in operations 18 and 12.

Additional research on economic organization at Hacinebi has focused on several aspects of craft production. Kathryn Keith's section discusses the results of her study of spindle whorls as evidence for the organization of Late Chalcolithic textile production. Finally, Hadi Özbal presents an archaeometric analysis of Late Chalcolithic and Early Bronze Age metallurgical artifacts.

THE PREHISTORIC OCCUPATIONS AT HACINEBİ: Stratigraphy, Architecture, and Small Finds

Gil J. Stein (Northwestern University)

Site Description and 1996 Project Goals

Hacinebi Tepe is a 3.3 ha. roughly triangular mound on the limestone bluffs overlooking the east bank of the Euphrates river, 5 km north of the modern town of Birecik in Şanlıurfa province, southeast Turkey. The site lies near the head of the main north-south riverine trade route linking Mesopotamia and Anatolia; it also occupies a strategic location on what has historically been a major east-west river crossing point. Five seasons of excavation (1992-1996) have been investigating fourth millennium BC interaction between Uruk Mesopotamia and Local Late Chalcolithic (LLC) indigenous societies in southeast Anatolia. This work has established the following occupation sequence at Hacinebi (Stein and Mısır 1994a, 1994b, 1995, 1996; Stein, Bernbeck et al. 1996; Stein, Edens, et al. 1996):

Roman farmstead (isolated structure at west end of site- ca. 1st cent. AD)

Achaemenid/Hellenistic (ca. 500-100 BC)

Early Bronze I burials - (ca. 3100-2700? BC)

Late Chalcolithic phase B2 - "contact phase" Late Local ceramics and Uruk presence: ca. 3700-3200 BC

Late Chalcolithic phase B1 - "late pre-contact": Late Local ceramics, no Uruk material : ca. 3800-3700 BC

Late Chalcolithic phase A - "early pre-contact" - Early Local ceramics: ca. 4000-3800 BC.

The main two occupations at the mound date to the Achaemenid/Hellenistic and Late Chalcolithic periods. 1-2.5 m. thick Achaemenid/Hellenistic deposits are present immediately below the plow zone, and form at least 3 main building levels. These overlie and cut into a Late Chalcolithic occupation up to 5 m. deep, dating approximately 4000-3200 BC. The Late Chalcolithic occupation consists of two phases: an earlier Phase A which has only typologically early Local Anatolian Late Chalcolithic ceramics, and a later phase B. Phase B1 has typologically late Local Anatolian Late Chalcolithic ceramics, while phase B2 has both late Local ceramics and Mesopotamian Uruk style ceramics (Stein, Edens, et al. 1996:96-7). This stratigraphic situation provides a rare opportunity to study the economic and cultural relations between Mesopotamians and Anatolians at Hacinebi during the period of trade connections between these two areas (the 4th millennium

BC Uruk period), while clarifying the ways that this trade affected the development of local societies in southeast Anatolia.

The 1996 field season had three main goals: 1) excavation of Achaemenid/Hellenistic deposits and exposure of the underlying Late Chalcolithic deposits in operations 13 and 15; 2) excavation of Late Chalcolithic phase B deposits in operations 12, 14, and 18; and 3) analysis of ceramics and chipped stone tools recovered in the 1992-95 field seasons. Seven weeks (37 work days) of excavations took place from July 14-August 25, 1996 in five trenches: Operations 14, 15, and 18 in Area A in the north part of the site; and operations 12 and 13 in Area B in the southeast part of the site (figure 1).

Area A (North)

Area A, at the northeast corner of the site, now comprises seven trenches (ops. 1, 4, 6, 10, 14, 15, 18) and three smaller test cuts (ops. 3, 8, 9) for a total exposure of more than 650 m². The 1996 excavations in Area A consisted of continued work in operations 14 and 15, and the opening of operation 18 as a new trench.

Operation 14

Operation 14 was a 10 x 13 m. trench located immediately to the north of operation 4 in Area A at the northeast edge of the site. Excavation of op. 14 had begun in 1995 and continued in 1996 with the exposure of Late Chalcolithic material from the contact phase B2 and the late precontact phase B1, down to the top of the underlying early precontact phase A. This detailed stratigraphic sequence (figure 2) forms the basis for the ceramic and lithic analyses presented in separate sections below.

Contact phase B2 remains were represented by pits 142 and 91/157, both containing almost exclusively Uruk ceramics. Pit 91/157 is notable for two small carved limestone objects - a small cup (HN122218) and a fragmentary female figurine (HN12202, see figure 4:B); the latter is one of the few human representations from the Late Chalcolithic occupation of the site. Pit 142 contained sealing clay and two jar sealings (HN11283/4 and 11285). These bore the impression of the same seal with a motif showing feet or footprints on the obverse, while the reverse bore the impression of the lip of a jar.

The phase B2 Uruk pits cut into two underlying architectural levels dating to the precontact phase. The upper level consisted of four thick mud brick walls (57, 58, 106, 110), forming at least two narrow rooms or corridors. Important finds from trash deposits in these early building levels included local style Anatolian stamp seal impressions and a small simply carved limestone "eye idol" (figure 4:C; see figure 2 for stratigraphic context). This find is particularly important because it demonstrates that the use of these figurines is a local southeast Anatolian practice, rather than being a practice that entered from southern Mesopotamia during the later B2 "contact" phase.

The single most significant architectural find in op. 14 was the discovery of a large stone and mud filled terrace (locus 119), built at the end of early precontact phase A. The terrace is oriented northwest-southeast, and measures at least 10 x 3.8 meters in the portions excavated to date. Terrace 119 abuts against and therefore postdates lower platform 221/47 immediately to the south in operations 1, 4, and 6 (figure 3). Terrace 119 is also built up against and partially

cuts into the eroded slope of the earlier occupation levels in the northeast corner of the mound. The original packed mud plaster surface of the terrace had been eroded away, so that only the south and west retaining walls and the stone/mud platform fill were preserved; the east and north faces of the structure remain unexposed, and may have eroded down the northeast slope of the mound. The area inside the retaining walls of terrace 119 was filled with alternate layers of mud and unworked limestone rocks; this same technique was used to construct the "lower stone platform terrace (locus 47) in ops. 1/6 (Stein, Bernbeck, et al. 1996:214). With the discovery of platform 119 in op. 4 we now have evidence for the construction of three monumental platforms and terraces at the end of the early precontact period (the phase A date is based on the typologically early character of the Local ceramics in deposits associated with the initial construction of the upper platform). First, the large platform 150 was constructed in op. 4/10 - perhaps as the base of a public building or elite residence. Very shortly afterward, terrace 47 was constructed in ops. 1/6 to extend the open area to the east of the platform. Finally, terrace 119 was constructed in op. 14 to extend the open space around to the northeast of the platform. The two terraces are sealed off by an ash layer whose ceramics suggest that it is transitional between the early precontact phase A and the late precontact phase B1. The scale of this platform and terrace complex is consistent with the interpretation that the northeast part of the site was an area of either elite residence or public buildings in the period before intensive interaction with Uruk Mesopotamia.

Operation 15

Operation 15 is a 10m. x 10 m. trench located immediately to the south of operation 10. Excavation of op. 15 had begun in 1995 and continued in 1996 with the removal of remaining Achaemenid/Hellenistic occupation levels and exposure of Late Chalcolithic strata from the contact phase B2.

The 1996 excavation of the Hellenistic deposits confirmed the basic sequence identified in 1995: an uppermost phase of large grain storage pits and more casually excavated pits overlay and cut down through an underlying phase of small scale stone and mud brick houses, courtyards, and domestic ovens probably dating to the 3rd-2nd centuries BC. This residential quarter in turn overlay the earliest Hellenistic phase of a large scale planned mud brick public building with its associated compact plastered courtyard surface. This earliest level, tentatively dated to the 4th century BC, was first exposed in operations 10 and 4 immediately to the north of op. 15 (see Stein and Misir 1995:fig. 9; McMahon 1996:224-225). The compact mud plastered courtyard floor (op. 15 surface 116) associated with this Hellenistic public building extended from the south end of operation 10 down across the entire area of op. 15. This complex was constructed by cutting down into and levelling off the uppermost portion of the Late Chalcolithic deposits in this part of the site.

Two main Late Chalcolithic building levels were exposed in op. 15. Based on associated ceramics and glyptic finds, both date to the contact phase B2. The uppermost Late Chalcolithic building level consisted of a small NE-SW oriented mudbrick house (figure 5) in which only the southernmost two rooms were preserved. The larger 2.2 x 4.4 m. northern room had white plastered mud brick buttresses and walls (164, 165, 166). The smaller 1 x 2 m. southern room was added on at a later date with the construction of wall 184. The house had two superimposed plaster floors. The contact phase B2 dating for this house is established by the high concentrations of Mesopotamian Uruk ceramics in the ash and midden that fill the rooms, and most notably

by the find of two complete bevel rim bowls in the floor deposit of the southern room. The house appears to have been peacefully abandoned, after which the walls decayed and the rooms filled with wash deposits. The structure was badly disturbed both by Hellenistic pits and by later Chalcolithic pits cut down from phase B floors which had been truncated by the Hellenistic period levelling of this part of the site.

The mud brick building overlies a larger contact phase B2 stone architecture; walls 232, 195/234, and 224 form a fragmentary room or possible courtyard measuring 3.2 m. NW-SE and at least 5.2 m. SW-NE (figure 6). The west side of this structure was destroyed by later pits. In the center of the room or courtyard was with a sunken, oval plastered hearth (locus 219), filled with ash and containing a fragmentary "U" shaped andiron, probably used as a support for cooking vessels. The building apparently extended to the north and east, where portions of it are preserved as walls 100, 101, and 102 in immediately adjacent op. 10. The structure or courtyard remained in use for an extended period, as shown by the presence of 3 superimposed compact floor surfaces, and at least one rebuilding of the stone walls. One pit (222) dug from floor surface 217/218 contained mostly Uruk ceramics, an unsealed jar stopper (HN13570) and a wicker basket sealing with a stamp seal impression on the obverse (HN13571). An Uruk cylinder seal impression showing an animal procession (HN13445) was found on an unbaked clay jar sealing in trash deposit 213 to the west of this structure (figure 7). Earlier phase B building levels were visible in the pit 46 to the south of this structure, but could not be fully investigated due to time limitations at the end of the field season.

Operation 18

Operation 18 is a 5 x 12 meter trench, oriented N-S, located at the base of the mound slope, immediately to the east of operations 1 and 6 on the northeast edge of the site. The trench was opened in order to investigate a Late Chalcolithic mud brick platform whose west edge had been initially identified in operation 6 during the 1994 excavations in that area.

No Achaemenid/Hellenistic remains were recovered in op. 18; this is not surprising given the fact that this area lay outside of the site's Hellenistic fortification wall, whose foundations have been identified in operations 14 and 6 immediately to the west. The absence of architecture and the sloping wash deposits indicate that Operation 18 was an open area from end of the Late Chalcolithic period onward.

The most significant discovery in op. 18 was that this area (along with op. 12 at the south edge of the mound) had been used as a cemetery in the Early Bronze I period (ca. 3000-2800 BC) at some point (perhaps as long as 100-200 years) after the abandonment of the Late Chalcolithic settlement (figure 8). The settlement associated with these burials has not yet be found, but it was probably located very close by, perhaps in the area now occupied by the modern village of Ugurcuk, immediately to the east of Hacinebi Tepe. The four Early Bronze I burials in operation 18 are NE-SW oriented cist tombs, lined with large, crudely hewn limestone slabs on the sides, covered with 3-4 large limestone slabs, and sealed with mud plaster. No infant jar burials were found in op. 18, suggesting that this might have been an adult cemetery. The consistent orientation of the burials, their fairly regular spacing, and the lack of overlap between them suggest that either they were more or less contemporaneous, or else that some kind of above-ground marker (long since removed or eroded away) might have indicated their location. Three of the burials had been plundered (loci 4, 6, and 10), but burial 5 was found sealed and intact.

Burial 5 contained a single poorly preserved skeleton of an adult with the head lying to the east. The body was interred with a rich array of grave goods consisting of seventeen ceramic vessels, including “champagne cups”, small pedestalled bowls, and small jars (figure 9). Ceramic parallels with sites such as Carchemish, Jerablus Tahtani, Hassek, and Arslantepe allow these burials to be dated to the Early Bronze Age I. The ceramics, their parallels and dating are discussed in greater detail by Julie Pearce Edens in a later section of this report (see figure 20). Other grave goods included hundreds of small, light bluish-green frit beads and four ornamental bronze pins. Two of the latter are especially noteworthy for their double rams head decorations (figure 4:F-G). The Hacinebi burials apparently reflect the beginning of an Early Bronze Age mortuary tradition that reaches its full development in the elaborate cist tombs of the mid-late third millennium at sites in the Euphrates valley and adjacent areas such as Titris, Carchemish, and the Tabqa dam area (Algaze, et al. 1992). A full report on the Hacinebi EB I tombs will be published separately by Julie Pearce Edens. After the use of operation 18 as an EB I cemetery, this portion of the site was abandoned, and remained that way throughout the Achaemenid, Hellenistic, and Roman occupations of the site..

Burials 5 and 6 cut into the highly eroded remains of Late Chalcolithic phase B2 mud brick platform 3. This platform had originally extended slightly to the west into op. 6, where its edge had been excavated as platform 87. This platform measured at least 4.8 x 3.9 m. and is preserved to a height of approximately .34 m. The platform was constructed of reddish mud bricks on a limestone foundation course. Its original function remains uncertain, but it appears to have been part of a series of contact phase B2 mudbrick structures built up against the east face of stone terrace 47 in operations 1/6. After the abandonment of the Hacinebi mound at the end of phase B2, the platform was badly eroded and largely buried by the accumulation of wash layers originating on the adjacent mound.

Area B (South)

Area B, at the southeast corner of the site, now comprises five trenches (ops. 2, 7, 11, 12, 13) with a total exposure of more than 450 m². The 1996 excavations in Area B took place in two adjacent trenches. Exposure of op. 12 continued from the 1995 season, while op. 13 was opened as a new trench immediately to the northeast (figure 1).

Operation 12

Operation 12 is a 10 x 10 m trench located immediately to the west of operation 11, with the aim of exposing the deposits associated with the west face of monumental Late Chalcolithic wall 101/68 (Stein, Bernbeck, et al. 1996:89-92). The previous season's excavations had exposed and removed the Achaemenid/Hellenistic building levels so that the only Hellenistic deposits that remained to be cleared in 1996 were the basal deposits in a few deep pits, and poorly preserved Achaemenid (?) mudbrick lined burial 120.

Massive erosion and wash layers (115 and 118) .80 m. deep underlay the Achaemenid/Hellenistic deposits and reflect the abandonment of the site for a period of over two millennia. These deposits slope down to the south and west away from the west face of the monumental LC stone wall 101/68. These deposits sealed off a previously undetected Early Bronze I (EB I) occupation, reflecting the use of this part of the mound slope as a cemetery

after the abandonment of the Late Chalcolithic settlement. The EB I cemetery in op. 12 was apparently contemporaneous with the cemetery in operation 18 at the northeast edge of the mound.

The Early Bronze I occupation consisted of two occupation levels. The uppermost of these consisted of a single, small stone structure with north, east, and south walls preserved (walls 100, 106, 107). The west wall was missing; either the crude structure was open to the southwest or else the west wall had eroded downslope. Due to the ephemeral nature of this occupation and the large numbers of redeposited Late Chalcolithic ceramics in this level, it had been initially misidentified as belonging to a "squatter phase" at the end of the Late Chalcolithic phase B2. However, the discovery of a small number of diagnostic Early Bronze I ceramics, most notably the evolved form of the earlier Late Chalcolithic/Uruk banded rim bowl, made it clear that this occupation and its associated structure postdated the Late Chalcolithic contact phase B2.

The earlier EB I phase is characterized by the use of the sloping open area in op. 12 as a cemetery (figure 10). The eight EB I burials recovered in op. 12 include adults and infants in three different forms of interment: jar burials, simple inhumations, and cist burials. The four jar burials (129, 135, 140, 201) consisted of infants placed in re-used storage jars with a band rim bowl sealing the mouth of the vessel. Grave goods consisted of frit beads, single copper/bronze pins or small ceramic vessels. The two adult inhumations (128, 141) differed from one another. Burial 128 was a loosely flexed adult inhumation, with the body facing southeast. No grave goods were recovered. In burial 141, the skeleton was in an extended position, oriented NNW-SSE, but was lying on its stomach. The positioning of the arms and the rest of the body suggested that the deceased might have been tossed in rather than carefully laid to rest. The only grave good in burial 141 was the mandible of a donkey or onager. The meaning of this unusual burial remains unclear.

The two stone/mud brick cist tombs (145, 153) resembled the intact cist burial from op. 18, but contained fewer artifacts. Burial 153 had limestone slabs lining the east and west sides of the cist, with mud brick at the north end (the southern end of the burial remained unexcavated in the south baulk of the trench). Two large flat limestone slabs sealed off the top of the tomb. The burial itself was a badly preserved adult skeleton, oriented NE-SW. Grave goods included two beaded rim bowls, and a broken pedestalled goblet. The other cist burial (145) had been robbed in antiquity, so that only the skull remained.

The mix of age groups and burial forms in op. 12 at the south end of the mound contrasts with the exclusive focus on cist burials of adults in the contemporaneous burial area in op. 18 at the northeast edge of the mound. The variety of burial forms reflects the transitional nature of the Early Bronze I period. The infant jar burials continue the Local Late Chalcolithic tradition (Stein, Bernbeck, et al. 1996a:210-211), while the cist tombs are clearly the prototype for the elaborate cist burials of the mid through the late third millennium at sites such as Titris and Lidar.

The EBI burials cut into an erosion-and -wash deposit that seals off the transition between the Early Bronze I and Late Chalcolithic occupations of the site. Two building levels were exposed in the 1996 season, representing the final stages of the contact phase B2. The uppermost, final Late Chalcolithic building level is a series of at least 28 closely spaced postholes (figure 11). The postholes are large (25-30 cm) set at intervals of about 30 cm. in two groups. In the first of these, 21 postholes extend in a single north-south line across the entire operation. They appear

to have been set into a trench running parallel to monumental stone wall 101. A second set of 7 postholes (204-209, 211) runs parallel to the first row of postholes (N-S), and then turns to the west, forming a right angle - possibly the corner of a structure. In the absence of associated artifacts, the function of the structure(s) formed by these postholes remains unknown. For the same reason, the dating of this occupation is uncertain; it represents either the very end of the Late Chalcolithic or possibly the Late Chalcolithic-EB I transition.

The post holes cut into an underlying building level of contact phase B2 domestic mudbrick architecture. This consists of a row of three rooms, with an enclosed courtyard to the north and open pebble surfaces to the east, west, and possibly north (figure 11). The open area to the east of this room complex forms a street running along the west face of massive stone wall 101/68. The rooms are range in size from 2.3x1.5 m. (the southeast room) to 4 x 2.2 m. (south-central room). and are constructed of yellowish mud brick, with plastered walls and floors. The rooms seem to have been constructed separately in several episodes, but appear to have all been in use at the same time. A doorway cut through wall 155 connects the south-central and south-west rooms. The northernmost set of walls (194, 216, 188) define an enclosed space whose unplastered surface 195 appears to have been an outdoor courtyard. The rooms and courtyard contained few artifacts, and appear to have been cleaned out before the building was abandoned. Only the southeast room (walls 125, 131, 136) contained any in situ materials - notably a Local Late Chalcolithic hammerhead bowl, an Uruk bevel rim bowl and a paving of red slipped, grit tempered body sherds deliberately laid on floor 137. Beneath this building level, earlier phase B2 deposits were visible in pit sections but were not exposed during the 1996 field season.

Operation 12 is important as the only excavated part of the site where later Achaemenid/Hellenistic construction activities did not truncate or destroy the uppermost Late Chalcolithic phase B2 occupation of the site. The evidence suggests that the Late Chalcolithic settlement on the mound was peacefully abandoned at the LC-EBI transition and shifted to a new location, possibly immediately to the east, beneath the modern village of Uğurcuk. At least two parts of the now abandoned mound were used by the EB I settlement as a cemeteries.

Operation 13

Operation 13 is a 10 x 10 m. trench immediately to the north of operations 11 and 12 in Area B at the south end of the site. The trench was excavated in 1996 in order to follow the line of the massive Late Chalcolithic stone enclosure wall 101/68 from its earlier exposures in operations 7, 11, and 12 (Stein, et al. 1996b). The stratigraphic sequence of operation 13 closely matches that of operation 7 (just 10 m to the south) in having an uppermost Hellenistic architectural complex overlying an Achaemenid burial (McMahon 1996). These first millennium BC levels are described below in a separate section by Augusta McMahon.

The Achaemenid/Hellenistic buildings levelled off and terraced the sloping south side of the mound in op. 13. As a result, in the east half of the trench, the post Chalcolithic erosion deposit 54 was completely truncated, so that Achaemenid/Hellenistic deposits directly overlay fourth millennium BC deposits. In the western half of op. 13, the steeply sloping mound topography preserved this erosion layer, which contained mostly Late Chalcolithic ceramics with occasional Early Bronze 1 diagnostic band rim bowl sherds. This is probably the equivalent of the post EB 1 abandonment layers 116 and 118 in adjacent operation 12. The presence, in small quantities, of these later ceramics in op. 13 provides additional evidence for an ephemeral EB1 use of the

south slope of the mound after the abandonment of the Late Chalcolithic phase B2 settlement. No evidence for EB1 architecture was recovered in op. 13.

Beneath the EB1 erosion layer, a series of Late Chalcolithic phase B building levels were recovered. The uppermost of these can be reliably dated to the contact phase B2; close examination of the ceramics is necessary before the earlier building layers can be more precisely defined as either B2 or the late precontact phase B1. Unfortunately, the later Achaemenid/Hellenistic terracing, tombs, and storage pits have badly damaged the Late Chalcolithic architecture, making it difficult to reconstruct the ground plans and original functions of these buildings and installations.

The uppermost preserved Late Chalcolithic building level consists of small mudbrick features 53 and 45. The latter consists of two converging mud brick walls one course thick, forming a narrow, north-south oriented channel 1.6 m long. The interior walls and floor of the channel had been plastered and have signs of burning and fire reddening. A large contemporaneous ash deposit lying 1-2 m to the southeast may be associated with the use of this pyrotechnic feature. The plastered channel became wider toward the south, and may have originally opened into a larger circular firebox of a kiln or furnace. This reconstruction is tentative, however, since most of the installation was destroyed by later Hellenistic pit 20.

The pyrotechnic feature overlies an earlier phase B2 building level characterized by simple mudbrick architecture and at least two pits (pits 63 and 65) containing purely Uruk ceramics such as complete bevel rim bowls and conical cups. Pit 65 also contained a complete limestone eye idol (HN12907). This object is a crudely carved limestone figurine 7.39 cm tall (figure 4:E). The head has two eye holes that were drilled through to the back of the head; there can be no doubt that these are indeed eyes because they have incised eyebrows above each hole. The body of the figurine is oval in cross-section, with arms represented by a series of incisions on the left and right sides. This example fits well within the range of variation in the size and form of the eye idols known from Hacinebi (see figure 12 and (Stein, Bernbeck, et al. 1996:figs. 8, 10).

This building level also contained important evidence of copper production at Hacinebi during the contact phase B2. Trash deposit 66 contained a piece of copper ore - HN12939. Analyses presented in a separate section below by Hadi Özbil indicate that this was a polymetallic ore whose copper/lead composition is consistent with material from the Ergani copper source in the area near Arslantepe. This ore sample is highly significant because it suggests that the inhabitants of Hacinebi in the contact phase B2 were actually smelting copper on site, rather than simply acquiring copper artifacts or ingots through trade with the source areas to the north.

The two building levels with Uruk material overlie a series of at least three additional phase B construction episodes. The uppermost of these comprises a group of mudbrick rooms and passageways defined by walls 52, 57, 72 in the east half of trench. More ephemeral structures of stone lay to the west of this structure, located at what may have been the top edge of mound's south slope. Beneath these structures were two building levels of poorly constructed single course wide stone walls and ash deposits, the latter containing an infant jar burial. Ceramics in this building level are exclusively Local Late Chalcolithic. Trash deposit 84 contained an open faced ceramic mold for casting copper (HN13165). The ephemeral walls form a number of small rooms built up against the eroded uppermost courses of earlier, precontact phase monumental architecture.

The earliest building level reached in op. 13 was the deeply buried top of the massive massive Late Chalcolithic stone enclosure wall 101/68, known from op. 11 immediately to the

south (Stein, Edens, et al. 1996:89-90). The 1995 excavations in op. 11 had indicated that this enclosure wall was initially built in phase A and continued in use throughout phase B as well. Although the niche and buttress structure of the wall's east face in op. 11 continues north into op. 13 as well, the top portions of the wall exposed in op. 13 are apparently less well preserved, showing signs of erosion and robbing of stones for later construction. This 3 m. thick wall apparently extends on a straight NNW-SSE across the entire length of ops. 11 and 13, further confirming the monumental nature of this enclosure.

Other Finds

In addition to the materials recovered from stratigraphic excavations, one surface find from 1996 is particularly noteworthy. While plowing along the southwest slope of the mound, a local farmer found and brought to our attention a large carved limestone eye idol (HN11702). The figurine is 21 cm tall, making it the largest complete example at Hacinebi (figure 4:A and figure 12:center). Eye idols are a distinctive fourth millennium form of figurine in northern Syria, northern Iraq, and southeast Anatolia at both Uruk and Local Late Chalcolithic sites such as Brak (Mallowan 1947), Gawra (Tobler 1950), Hassek (example on display in the „anliurfa Museum), Sheikh Hassan (Boese 1995:74), Umm Qseir (Hole 1986/7), Hacinebi (Stein, Bernbeck, et al. 1996:figs. 8, 10), and Arslantepe VII (Frangipane 1993). These figurines are best known from later fourth millennium Uruk-related contexts at these sites. However, it is important to note that at both Arslantepe and Hacinebi, eye idols have been found in strata which predate the periods of intensive contact with Uruk Mesopotamia, strongly suggesting that these figurines are a local northern phenomenon, rather than an import from the south. If this interpretation is correct, then the presence of presumably northern (ritual?) figurines in deposits with otherwise purely Uruk material culture may indicate that some aspects of the Local Late Chalcolithic culture were adopted by Mesopotamians. The extent of this cultural borrowing can be seen in the fact that eye idols later appear in exclusively Uruk settlements such as Sheikh Hassan and Umm Qseir, even in the absence of any material evidence for a Local Late Chalcolithic population.

Laboratory Analyses

In 1996, continuing laboratory analyses focused on ceramics, chipped and ground stone, botanical remains, metals, and artifact conservation. Studies of both Achaemenid/Hellenistic and Late Chalcolithic ceramics continued during the 1996 field season. Dr. Augusta McMahon continued her work on developing a typology and chronology of the Achaemenid/Hellenistic material, focusing on the recording of ceramics from operations 11 and 12. Ms. Julie Pearce Edens and Mr. Kenneth Boden examined Late Chalcolithic ceramics from stratigraphically secure contexts in a series of phase B1 and B2 building levels in operation 14. Reports on the chronology and technology of the Hacinebi ceramics are presented in separate sections below.

Dr. Christopher Edens continued his analysis of the Hacinebi Late Chalcolithic chipped stone, with the assistance of Ms. Güner Coskunsu. At this point, approximately 13,500 pieces have been recorded, so that Hacinebi now provides the largest analyzed assemblage of Late Chalcolithic chipped stone artifacts from this part of the Near East (see discussion by C. Edens, below).

Ms. Tania Collas continued the archaeological conservation program, assisted by Katherine May. Conservation activities focused on two main activities. First, the large Achaemenid ceramic coffin from operation 13 burial 38 was stabilized, removed completely intact, and safely transported to the Şanlıurfa Museum. Second, the main metal artifacts from the Achaemenid burial (op. 13 locus 38) and an intact Early Bronze I burial (op. 18 locus 5) were cleaned and stabilized. The conserved Achaemenid grave goods included a bronze mirror with traces of a leather covering, silver earrings, gold-plated silver beads and belt ornaments, silver-bronze alloy anklets with animal head motifs. Conservation of the Early Bronze I metals focused on two bronze toggle pins with paired rams head decorations at their proximal ends.

Preliminary processing of archaeobotanical material also continued in the 1996 season. Twenty flotation samples from Hacinebi were processed through the courtesy of Dr. Guillermo Algaze and Mr. Duncan Schlee of the Titris Höyük excavations. The processed light fractions will be analyzed by Dr. Naomi Miller (University of Pennsylvania Museum Applied Science Center for Archaeology-MASCA).

ACHAEMENID-HELLENISTIC REMAINS AT HACINEBİ, 1996 INTERIM REPORT Augusta McMahon (University of Cambridge)

Architecture

During the 1996 season of excavations at Hacinebi, 1st millennium BC levels were uncovered in a single trench, Operation 13. This 10 by 10 meter trench is located just north of Operations 11 and 12 at the southeast edge of the site, overlooking the Euphrates River (figure 1). The architectural levels of the 1st millennium BC consist of additional rooms of the massive structure which has been partially uncovered in adjacent trenches in the previous four seasons (Operations 2, 7, 11 and 12; see Stein, Bernbeck et al. 1996, Stein, Edens et al. 1996).

Prior to the construction of the building, a richly endowed Achaemenid burial had been interred in the western portion of Operation 13, in what was an open area with no associated architecture at the time. The subsequent occupation in Operation 13 follows the sequence already identified in the neighboring trenches, beginning with terracing and cutting of foundation trenches for the massive building. The slope of the earlier mound surface in this area is extreme enough that although an intensive terracing operation took place, the floors of the building as revealed in Operation 13 were still substantially higher than those of the same building in Operations 11 and 12, just to the south. This building complex has by now been revealed as having at least three courtyards and is at least 25 by 35 meters in extent; its exterior walls have not yet been reached. The date of the building, from the associated pottery and objects, seems to be sometime in the fourth century BC. The main load-bearing walls of the building are built of mudbrick on stone foundations, set into the foundation trenches or on the terraces; narrower internal dividing walls of mudbrick were then built on the construction surface. As in the other trenches where this building has been exposed, floor deposits were very clean, with few associated objects or ceramics; however, these deposits are certainly occupational material rather than deliberate fill, as is evidenced by an oven in one room. The building was ultimately partially destroyed by fire, leaving a heavy ash and charcoal layer on the floor and burned plaster on the walls of one

room exposed in both Operations 12 and 13. The rest of the building was simply filled or allowed to fill with erosion debris.

An unfinished foundation trench at the northern end of Operation 13 testifies to a planned use of this area for a later structure, but although the trench was dug, the foundations were built only partially across it and were left unfinished. A few later walls had also been built over the ruins of the building in Operation 12, and there are ephemeral occupation deposits associated with them. The final use of the southeast area involved the cutting of numerous pits; there are several deep bell-shaped or cylindrical storage pits, irregular shallower trash pits, and one burial pit in Operation 13 alone. The date of this final phase, again to judge by the associated pottery and objects, is in the third to second century BC. Stratigraphic connections between the southeast area and the 1st millennium levels in the northern and western portions of the site are not possible, but we hope to be able to establish chronological linkages among these areas through further analysis of the pottery and other artifacts (1st millennium BC material has also been uncovered in Operations 3, 4, 6, 8, 9, 10, 14, 15, 16 and 17). Analysis of the 1st millennium BC material from all the operations continued during the 1996 season and will be concluded in the season scheduled for 1997.

The Achaemenid Burial in Operation 13

The Op. 13 Achaemenid burial (Burial 38) is similar to and clearly contemporary with Burial 28 in Operation 7 (excavated in 1993; see Stein, Bernbeck *et al.* 1996: 227-229 & Fig. 14); these burials may also be contemporaneous with Burial 99 in Operation 12. All three certainly predate the massive building of the fourth century BC. Burial 38 had been cut into an erosion layer which formed during the intervening millennia from the Early Bronze Age to the Achaemenid Period, when the site apparently was unoccupied. The southeast area has not produced any architecture or other remains of Achaemenid date, and it may be that the site was being used as a cemetery by the inhabitants of a neighboring, as yet unidentified, settlement. However, further analysis might indicate that the lowest phases of 1st millennium BC occupation in the northern area, Operations 8, 9 and 15, are contemporary with the Achaemenid burials at the southeast.

Burial 38 is in a deep, roughly rectangular pit, which contained a baked clay coffin set in a mudbrick cist, with mudbrick capping (figure 14). There were three jars outside the coffin between the cist and the pit sides, two cylindrical jars with horizontal red paint stripes (figure 15:B-C) and a narrow-necked plain bottle. The coffin is oval in plan, with straight sides and a heavy flat rim; the edge of the rim was decorated with evenly-spaced finger impressions and there were two additional applied horizontal bands with finger impressions on the sides (figure 15:A). There were four handles for transporting the coffin, formed by slightly widening the rim and hollowing out the area underneath it.

The skeleton had been placed in the coffin in a flexed position, with the head towards the east-northeast, an orientation consistent with that of the skeleton in Burial 28 in Operation 7. The body lay on its left side, with the face turned to the southeast and the hands in front of the face. The quantity of jewelry and other items was substantial, though not as great as that with Burial 28 (figures 15, 16). A number of items had been placed around the body inside the coffin. An extremely fragile and poorly preserved object of blue and green faience beads and

an unidentified organic material had been placed near the hands, and with it was a pile of animal bones, two scapulae and the limb bones of a small sheep or goat. Next to this, stacked one atop the other against the southern wall of the coffin, were two small alabaster or marble alabastra with wide flat rims and vestigial lug handles (figure 16:A-B). Also in the coffin fill was a segment of a stone disk which may have been part of the rim of a third alabastron. In association with the alabastra was a short iron pin with circular cross section and a flattened chisel-like end. At the back of the skeleton, between it and the coffin, were three more items, a red-striped jar of the same type as those outside the coffin, a copper mirror with traces of the wooden handle still preserved (figure 16:C), and a badly shattered object made of turtle shell.

There was a moderate amount of jewelry and other ornaments on the body (figure 16:D-M). At the right side of the jaw was a group of five fragmentary hollow bronze lunate-shaped objects and bits of wire which may have been part of an elaborate earring or earrings; and at the other ear was a plain penannular silver earring. Around the neck was a group of beads in faience, rock crystal, and striped glass, along with 15 bronze coin-shaped pendants with stamped decoration on both faces, unfortunately too poorly preserved to identify (figure 16:M). Near the back of the pelvis were a pair of unusual items, two sets of three gilt-silver rings, fused together in a straight line (figure 16:F-G). With these ring sets were two large gilt-silver hub-shaped beads (figure 16:J); these four items may have been part of a belt, given their location on the body. And finally, on each leg there was a silver and bronze alloy anklet with finely-detailed calf-head finials (figure 16:D-E). The calf-heads are nearly identical to those on a pair of gold bracelets from the hoard of gold and silver items from a room in the palace at Vouni, on Cyprus, a hoard which includes coins of Artaxerxes I, among others, and has been dated to between 470 and 387 BC (Gjerstad et al. 1937). This date fits with the late 5th century date we assigned to Burial 28 in Operation 7, on the basis of a signet ring with a crouching winged lion or griffin found with that skeleton.

Inventory of Objects from Achaemenid Burial 38 in Operation 13

Pottery

HN 11690, cylindrical red-striped jar, from burial pit. (figure 15:B)

HN 11691, cylindrical red-striped jar, from burial pit, (figure 15:C)

HN 12128, cylindrical red-striped jar, from inside coffin, (figure 15:D)

HN 11693, narrow-necked bottle, from burial pit, cf. a light-blue glazed example from the Achaemenid cemetery at Deve Höyük, near Carchemish; Moorey 1980: Fig. 4:31.

Stone vessels

HN 12122, alabastron (Fig. 16:A) cf. example from Hacinebi Op. 7, Burial 28 in Stein, Bernbeck et al. 1996: Fig. 14: H; and multiple examples from the palace and tombs at Vouni in Gjerstad et al. 1937 Pl. XCIV 1, Pl. XCVIII 9, Pl. CV 1 and 2, Pl. CVII 4. Vessels like this are common in Achaemenid contexts from the Mediterranean across Mesopotamia and into Iran.

HN 12133, alabastron, (figure 16:B)

HN 12130, stone disc section, (figure 16:H)

Jewelry/Ornaments

HN 12123, silver-alloy anklet, (figure 16:D): cf. Moorey 1980: Fig. 11: 265-280, Fig. 12: 282-283 for less finely-detailed bronze versions; and cf. Gjerstad et al. 1937: Pl. IV, Pl. XCI g & XCIIg for nearly-identical gold versions.

HN 12124, silver-alloy anklet, (figure 16:E)

HN 12127, bronze earring fragments (crescents), (figure 16:L): cf. Gjerstad et al. 1937, Pl. CII 1 for more complete versions in silver.

HN 12125, glass and stone beads and bronze stamped pendants (figure 16:M)

HN 12131, penannular silver earring, (figure 16:K)

HN 12135, gilded silver ring set, (figure 16:F)

HN 12136, gilded silver ring set, (figure 16:G)

HN 12138.1 & 12138.2, gilded silver hub-shaped beads, (figure 16:J)

Other Items

HN 12132, iron pin, (figure 16:I)

HN 12140, bronze mirror, (figure 16:C)

HN 12442, baked clay coffin, (figure 15:A) cf. Oates & Oates 1958: Pl. XXVII:13 for a similar, but later, Hellenistic coffin.

CHIPPED STONE

Christopher Edens (University of Pennsylvania Museum)

The systematic recording of chipped stone excavated from Chalcolithic levels continued in the 1996 season.¹ The 4000 pieces coded this year brings the total sample to about 13,500 pieces, the largest Late Chalcolithic assemblage from this part of the Near East. Approximately 3000 specimens of currently excavated material remain to be coded. One objective of the 1996 season was a continuation of the use-wear study begun last year, now at higher magnification; a problem with equipment obstructed this program. In anticipation of continuing this aspect of the chipped stone analysis, the 1996 season included a program of experimental tool use, intended to establish a comparative collection of polishes, striations, and microflaking patterns that result from working locally available materials with local flints.

The lithics coding focused on the materials excavated from Op. 14, where a coherent architectural sequence establishes good temporal control. Excavated during the 1995-1996 seasons, the Op. 14 sequence included floor and room deposits, as well as trash and wash deposits, with both Uruk and LLC identities. Table 1 summarizes the stratigraphic phasing of the Op. 14 sequence, along with an indication of the general depositional character, phase and stylistic association of each level as either Local Late Chalcolithic (LLC), Uruk, or both. As evident in the table, the Op 14 sequence spans Phase B. Uruk pottery predominates from level 14.30 to the surface. Level 14.40 embraces separate contemporaneous deposits of predominantly LLC (the room deposit Locus 40) and predominantly Uruk (the trash deposit Locus 49, formed outside the LLC

¹ As last year, Ms. Guner Coşkunsu (Istanbul University) ably assisted with the chipped stone coding, and especially with the experimental microwear program. A grant from the American Philosophical Society supported the 1995 season of analysis, some results of which appear here.

wall) pottery. This building level thus repeats, in a less emphatic way, the spatial separation of contemporary LLC and Uruk deposits previously identified in Ops. 1/6 (Stein, Bernbeck et al. 1996).

The Op. 14 sequence of chipped stone assemblages offers the potential for revealing changes associated with the advent of the Uruk community in this part of the site. The results of previous years have offered preliminary answers to numerous important questions about the technology and use of the chipped stone industry at Hacinebi. Most of the questions revolve around the central issues of changes through time and distinctions between local and Uruk lithics. Since the Op. 14 sequence involves replacement of LLC with Uruk contexts, rather than their contemporaneous co-existence, the sequence does not allow a clear resolution of the chronology/ethnicity ambiguity that has hindered analysis so far. Nevertheless, the Op. 14 data make useful contributions toward solution of several problems: 1) whether the LLC and Uruk stone tool users differently preferred simple and Canaanian blades (see Stein, Edens et al. 1996:100 for definitions of these terms); 2) whether Uruk stone tool users chose narrower blades (of both kinds) than their LLC counterparts, or conversely whether the two types of blades became narrower through time; and 3) whether Uruk blades were modified and used in different patterns than were LLC blades.

The chipped stone assemblages from the Op. 14 sequence total 3019 pieces (roughly 80% of the excavated total, the remainder coming from loci not firmly assigned to a coherent phase). The assemblages from levels 14.00, 14.50, 14.80, and 14.90 are too small to be useful (each less than 30 pieces), and will not be used here. Table 2 summarizes technological aspects of the remaining assemblages.

Both simple and Canaanian blades are present throughout the sequence, but in changing proportions. The simple blades become much more frequent through time, increasing sharply from 0-3% in the LLC assemblages to 6-10% of the Uruk chipped stone; some 95% of the simple blades occur in Uruk contexts. The same patterns are documented elsewhere in Area A (Op. 4) and in Area B (Op. 11). Canaanian blades are more strongly present throughout the sequence, but do decline from contributing 8-18% of the LLC assemblages to only 3-5% of Uruk assemblages. These relative rates of Canaanian blades are consistent with Phase B LLC and Uruk assemblages elsewhere at Hacinebi. The significance of these inverse tendencies remain uncertain, since they could hold chronological and/or ethnic implications.

Blade widths in the Op. 14 contact phase B2 assemblages do vary with stylistic (Uruk vs. LLC) context. Taken individually, the assemblages show an appreciable difference in simple blade widths through time, though small sample sizes bring into question the significance of these variations. The widths of Canaanian blades fluctuate considerably along a slight trend of narrowing through time. When the assemblages are pooled as LLC/earlier versus Uruk/later groups, clear and statistically significant differences do emerge for both type of blades (see Table 3). Previous results suggested that contemporaneous Uruk and LLC makers and/or users of blades preferentially selected somewhat different widths — both kinds of blades in Uruk contexts tend to be narrower than those from LLC contexts. The Op. 14 data support the conclusion that Uruk assemblages tend strongly to use narrower blades, but cannot exclude a chronological explanation for the phenomenon.

Other characteristics of the assemblages also follow habits evident elsewhere in the site. Formal (i.e. retouched) flake tools occur in low numbers (generally 1-4% of flakes in each

assemblage, although this percentage reaches 8-9% in several smaller assemblages). The flake tools are typologically unstandardized, and include variably retouched flakes, truncated flakes, notched flake, denticulated flakes, backed flakes, scrapers, borers, burins, combination tools (burin-scraper, burin-borer, borer-borer), cleavers, and pieces *ecaillees* (Figure 17). An enormous tabular scraper may be singled out for special mention (see figure 17); like tabular scrapers elsewhere at Hacinebi, this example comes from an Uruk context (the floor of a kitchen in level 14.1; see Stein, Edens et al. 1996:87). Modified blades occur in equally variable frequencies, although in general the simple blades tend to be modified (denticulated, truncated and/or backed) more frequently than do Canaanian blades, and both are somewhat more commonly modified in Uruk than in LLC contexts (figure 17); these tendencies are better documented elsewhere in the site. Canaanian blades are occasionally used as blanks for retouched tools, notably drills in both Uruk and LLC context. More often, blades are hafted with bitumen, for use in sickles and other composite tools. The rates of "sickle gloss" and bitumen hafting residue on blades in the Op. 14 sequence also varies considerably from level to level. In general, the Op. 14 data only vaguely corroborate the trend seen in other parts of the site, that Canaanian blades were preferentially used as sickle elements.

The 1995 excavation of Op. 14 recovered dense debris associated with production of simple blades from several intersecting Uruk pits (Loci 50/77/142), probably the refuse from a single workshop in level 14.30 (see figure 3 in this article and description in Stein, Edens et al 1996). Chipped stone is twice as dense in level 14.30 deposits as anywhere else in Op. 14, and over three times more dense than the average for the other levels.² These well-defined contexts provide the first concentrated evidence for a workshop at Hacinebi possibly representing specialized craft production.

An examination of the simple blade cores, the core preparation and core maintenance flakes, the discarded simple blades, and the recycled cores and flakes provides information about the blade reduction sequence. Although crested blades and flakes, and examples of unstruck crested core, do occur, this core initiation technique is rarely attested at Hacinebi. Instead, a split nodule or cobble (i.e. with cortex across one side of the block), or a thick flake is treated like a flake core, with one or more plain striking platforms running along the sides of the block. This flaking creates a "half crest" formed by the intersection of the striking platform and the flake release surface. The blade core striking platform is then created by a single flake removal perpendicular to the crest. The first removal from this new platform follows the half-crest, creating a flake or lamellar flake that bears a flake core striking platform on its dorsal surface; in the examples from level 14.30 this half-crest is usually near one edge rather than in the center of the flake. Initially set at a fairly acute angle, the new striking platform is plain, and used without preparation (other than grinding its edge for strength) until the flaking angle approaches 90 degrees. At this point, the striking platform may be removed (producing a core tablet) or faceted (resulting in an often hinged striking platform preparation flake), thus making the flaking angle more acute;

² Although all the sediments in the three atelier pits were screened, differential recovery rates do not account for the variable densities of chipped stone through the Op. 14 sequence. Other 80-100% screened deposits yielded chipped stone at a much lower rate – contrast 213 pieces per cu.m. for the atelier pits with rates of 12 per cu.m. for two level 14.00 pits (100% screened) and 51 per cu.m. for level 14.75 trash deposits (80% screened). Densities are more a function of depositional behaviours than of variable recovery.

as a corollary, the cores with faceted striking platforms tend to have nearly 90 degree platform-release face angles, and/or to be relatively short. When hinging problems limit the usefulness of the blade release surface, a comparatively thick lamellar flake may deliberately be struck to remove the problem, or flakes may be struck across the problem area obliquely from the base. Most of the simple blade cores in the level 14.30 assemblage, and elsewhere at Hacinebi, are flat to oval in cross-section, presenting a blade release surface that covers one or two faces, and cortex and/or preparation flake scars form the remaining surfaces (figure 18). Together the characteristics of the simple blades themselves (see Stein, Edens et al 1996:100-101), these features indicate use of a pressure technique that seems very similar to that reported for 4th and 3rd millennium BC Mesopotamian sites (e.g. Pope and Pollock 1995, Coqueugniot 1993).

The characteristic products of this blade technique are concentrated in the level 14.30 assemblage, and especially in the intersecting pits 50/77/142, but are certainly not confined to those contexts. The intensity of production in a given assemblage may be expressed by an index that sums the unmodified simple blades, the simple blade cores, and the simple blade core production debris (half-crested flakes, core tablets, striking platform preparation flakes, release face correction flakes), and expresses this sum as the proportion of the total assemblage. This index is extremely variable through the Op. 14 sequence, being very high not only in the level 14.30 assemblage (as expected) but also in relatively high in the level 14.10 assemblage (see Table 4). The low value in the earlier LLC contexts extend the implications of the low frequency of simple blades, suggesting that (a) they are not being made at this time, (b) they are not being made in the part of the site, and/or (c) they are not being made in the same way as the simple blades in Uruk contexts. This question (and the parallel question for Canaanite blades) will be a central concern for future coding and analysis.

Table 4 also indicates the proportion of decortification flakes (somewhat arbitrarily defined as flakes or shattered flakes with at least 50% cortex on the dorsal face) in the assemblages. The comparatively low frequency of cortical flakes in the level 14.30 assemblage suggests that the initial preparation of the blade cores took place elsewhere, perhaps off-site at raw material sources. At the same time, this part of Table DD shows that decortification flakes can reach high levels in some assemblages, and especially those from LLC contexts. The level 14.75 assemblage seems to include large amounts of primary flake reduction debris, for which the high decortification index is only one indication. But cortical flakes are numerous in other behavioral settings as well, and repeats a previously observed pattern. The free availability of local raw material partly accounts for the high rates of cortex; but the emerging contrast with Uruk assemblages hints at ingrained cultural attitudes and practices that may help further distinguish the Uruk from LLC communities.

HACINEBI CERAMIC ANALYSIS, 1996

Julie Pearce Edens (University of Pennsylvania)

Late Chalcolithic Phase B Ceramics

The 1996 season of ceramic analysis was designed to identify more clearly the chronology of Phase B. The coding focused on the loci from Op. 14, where a well-documented stratigraphic

and architectural sequence was excavated. The attributes coded and the typology used were both based on the work started by Susan Pollock and Cheryl Coursey in the 1993-94 seasons (Pollock and Coursey 1995, 1996), and continued during the 1995 season (Pearce 1996). Several loci from the Op. 4 deep sounding were also coded to complete the phase B sequence and to identify the transition between phases A and B in the north area of the site. The uppermost locus in the deep sounding contained Phase B1 materials, while the rest of the sample from all underlying deposits contained Phase A diagnostic ceramics. On the basis of this op. 4 material, it appears that excavation in the stratigraphically linked Op. 14 ended just above the latest Phase A levels. The 1996 effort coded 5727 diagnostic sherds. This number brings the total sample to about 18,000 diagnostic sherds, all from excavated contexts. Approximately 1000 diagnostic sherds from good Op. 14 contexts remain to be analyzed. Approximately 20% of the ash layer, Op. 14, Locus 146, was coded. This coding will be completed in the 1997 season.

Table 1 presents the Op. 14 stratigraphic sequence, indicating the numbering of building levels (from the uppermost 14.00 to the earliest excavated level 14.90), the general depositional character of each level, its phase, the stylistic affiliation of the pottery as either Uruk or Local Late Chalcolithic (LLC), and the locus numbers for each level. As evident in the table, the 1995-96 excavations in Op 14 document a sequence that runs from the late precontact Phase B1, through the contact phase B2. In Level 14.40, predominantly Uruk (trash deposit 49, formed outside the LLC wall) and predominantly LLC ceramics (room deposit 40) are found in contemporaneous but separate deposits. This mirrors the earlier discovery of adjacent by separate Uruk and Local assemblages in ops. 1 and 6 (immediately to the south of op. 14; see Stein, Bernbeck, et al 1996: 215-217). Interestingly, none of the op. 14 levels has deposits that are either purely Uruk or purely LLC as presented in Table 5. The better represented pottery type determined the stylistic designation of a level.

Previous analysis divided the Hacinebi ceramics into a sequence of Phase A, B1 and B2 (Stein, Edens, et al. 1996:96-7). This year we tested the chronologically diagnostic types that were established by the analysis of the 1995 pottery frequencies. The 1996 pottery frequencies of the previously identified types are summarized in Table 6. Since every level contains both Uruk and LLC ceramics, the percentages were calculated using only the total number of LLC ceramics in order to standardize the comparisons. The following LLC types are described and illustrated in Pollock and Coursey (1995).

Type IIg was thought to be a typologically early "hammerhead bowl" (large, open bowl with thickened and modified rim). The frequencies evident during the 1996 season reveal no significant chronological distinction for this type, being present in roughly equal proportions in both early and late Phase B contexts. Also, the frequencies of type XVIe, a band rim jar that was thought to be a typologically late form, reveal no correlation to the stratigraphy. However, the rest of the types thought to be chronologically distinct, do follow clear chronological trends.

The typologically early hammerhead bowl types Ili and IId, peak in frequency during levels 14.75 and 14.80, and decrease in frequency throughout later levels. Following this same pattern are the fine ware carinated bowl (Type Va), a coarse ledge rim bowl (Type VIId), and a band rim jar (Type XVIa). Hammerhead bowl type IId remains at a consistently high frequency (15% of all LLC forms) throughout the later levels of Phase B.

The typologically late forms include two hammerhead bowls. One, type IIa, is present from the beginning of the Op. 14 column, however, in level 14.60, the frequency more than

doubles from 9% to 20% of the total LLC ceramic assemblage. The other hammerhead bowl, type IIb appears for the first time in level 14.70 but does not attain lasting popularity until the Uruk level, 14.40. Finally, the small casserole (squat, carinated cooking jar), type XIIa shows a steady increase in popularity from the earliest levels to the latest making up 18% of the LLC assemblage in 14.20 and 16% in 14.10.

The goal for the 1995 season was to determine whether there were chronologically distinct LLC ceramic types that would allow phase designations within Phase B without the presence of Uruk ceramics. The beginning of Phase B2 was defined on the basis of the appearance of Uruk ceramics alongside of the typologically late Local assemblage. The 1996 excavations in Op. 14 allowed a clearer correlation to the appearance of the Uruk ceramics, suggesting that the earliest B2 building level in op. 14 was “yellow brick” building level 14.60, or possibly the trash and wash deposits (level 14.50) that fill the building after its abandonment. The abandonment level 14.50 precedes a mixed deposit, level 14.40, which is characterized by contemporaneous LLC and Uruk contexts.

Early Bronze Age I Ceramics

The 1996 excavations at Hacinebi revealed a new ceramic horizon. A variety of burials in the North (op. 18) and in the South (op. 12) areas of the mound (figures 7 and 9) contained pottery that was stylistically different from the well-documented Local Late Chalcolithic, Uruk, and Achaemenid/Hellenistic assemblages. The burials include two cooking jar burials (Operation 12), two storage jar burials (Operation 12), and several inhumations. The North area (Operation 18) yielded two relatively rich cist tombs, especially compared to those in Operation 12. These finds are described above (see also figures 4:F-K; 8) and will be treated more fully in a later article. For the purposes of this preliminary report, a brief description of the basic ceramic types is presented, along with a cursory presentation of the published parallels..

Jar Burials

The jar burials reused both cooking jars with evident sooting, and previously broken storage jars. The cooking jars are globular with plain round rims and everted or flared neck with a round base. The paste is light reddish-brown (5 YR 6/4) in both cases with sand, grit, and large mineral temper. One example (figure 19:A) is covered with a dark reddish gray (5 YR 4/2) wash over both the interior and exterior surfaces. The other example is scraped on the exterior surface from the neck to the base. The rim diameters range from 19 to 21 cm. This jar, although fairly nondescript resembles cooking jars to the north from EB I contexts at Hassek Höyük (Hoh 1981, Fig 16:3, 5), from period V levels at Kurban Höyük, in the Karababa basin (Algaze 1986, Fig. 12:5; 1990, Pl. 52: F), and to the south, from Tell Abu Hafur in the Habur triangle (Kolinski and Lawecka 1992, Fig 12, 17a).

The two cooking jars and the storage jar were covered with band rim bowls (figure 19:B) that had been inverted as lids. These are shallow bowls with the lower edge of the band thickened to create a sinuous profile on the band. The paste varies from pink (7.5YR7/3) to light brown (7.5YR2/4) and is tempered with fine sand, sometimes with some mica and lime inclusions. The rim diameters range between 21 - 25 cm. The illustrated example is repaired with an unbaked clay plug made of a different paste from the bowl. The other two examples have a flat base.

Parallels for this bowl are fairly well distributed throughout the Upper Euphrates, again in EB I levels (Frangipane and Palmieri 1988:553). They are known from level VIB2 at Arslantepe (Ibid. :Fig. 20: 6), they are found at Hassek Höyük (Hoh 1981, Fig 12:3), and they appear in Kurban V (Algaze 1990, Pl. 45: N-P and Pl. 46: L-N).

The large storage jar with a rounded beaded rim (figure 19:C) has a globular body and a high, slightly flared neck, and a round base. The paste is pink (7.5YR7/4) and the temper is a fine sand. The exterior surface was scraped or trimmed diagonally from the shoulder to the base. The interior surface shows pitting and erosion and the break on the rim is worn and smoothed, through, presumably, pre-depositional use. This jar, although a fairly common shape, has a formal and contextual parallel at Tell Abu Hafur in North Syria (Kolinski and Lawecka 1992, Fig. 15:1). Here too, the jar was reused as a burial vessel (Ibid. :202). This is the only jar burial at Hacinebi with additional grave goods. A bronze pin (figure 4:H) is included in the burial along with a small four-lugged footed jar (figure 19:D). This jar has a slightly everted beaded rim, a high neck, and a sharply carinated shoulder. The lower body is conical in shape, and there is a low flaring pedestal base. There are four vertically-pierced lugs resting just above the carination. The surface is left untreated and the paste is pink (7.5YR/7/4) with fine sand temper. There are very close parallels at Arslantepe VIB2 (Frangipane and Palmieri 1988, Figs, 18: 2, 4, 5; 26, 1) and from the West Necropolis at Hassek Höyük (Behm-Blancke 1984: 57-58; Hoh 1984, Fig 16:1-2). According to Frangipane and Palmieri (1988:547), this form is not documented further north than Arslantepe. In fact, the form itself can be compared to Ninevite 5 jars from Telul eth Thalathat (Fukai et al. 1974, Pl XLIV: 28; Pl. LI:17, 18) and Tell Mohammed Arab (Killick 1986, Fig 3:5), although the jars from Telul eth Thalathat are incised and those from Tell Mohammed Arab are painted in the characteristic Ninevite 5 fashion.

The inhumation from Operation 12 contains four ceramic vessels. The first is a miniature beaded rim globular jar (figure 19:E) with a slightly insloping neck and a rounded flat base. There are remnants of pale slip on the exterior surface. The vessel is trimmed lightly above the base. The temper is a very fine micaceous sand and the paste is pinkish gray (7.5 YR 6/2). The second is a plain rim globular jar with a slightly flared neck and flat base (figure 19:F). Trimming is evident on the lower walls and shoulder. The temper is fine sand with some grit inclusions and the paste is pink (7.5 YR 7/4).

The other two vessels included in the inhumation are small beaded rim hemispherical bowls (figure 19:G). The illustrated example has a slightly footed base that was probably created by trimming. The rim diameter is 10.5 cm on the two bowls. The temper is fine sand and the paste is pinkish white in both examples (7.5 YR 8/2). The closest parallels are from level VIB2 at Arslantepe (Frangipane and Palmieri 1988, Fig. 20:1-5).

Tomb Ceramics

The tombs from Operation 18 were much more elaborate than the jar burials and inhumation discovered in Operation 12. This disparity may reflect either a chronological distinction, or a spatial/hierarchical differentiation within the same period. This will be explored further in forthcoming publications. For this preliminary report, the ceramics from one of the tombs (Operation 18, Locus 5) will be outlined here.

There are three miniature vessels included in the tomb, the smallest of which is a single hemispherical bowl/cup (figure 20:A). The bowl has a slightly flared rim that is thickened on

the interior. The paste is pale yellow (2.5YR7/4) with fine sand and lime temper. This preliminary study draws only a very tenuous parallel to a small Ninevite 5 cup from Telul eth-Thalathat (Fukai et al. 1974, Pl. XLVII: 2-3). The other two miniatures are both globular jars (figure 20:B), with beaded rims and applied ring bases. One neck is slightly flared, the other is slightly everted. The walls on both vessels are very thin. The paste is fine pale yellow (2.5YR7/4). The rim diameters range from 7.0 to 7.7 cm.

There are two low pedestal globular jars (figure 20:C). These jars have plain flared round rims and exaggerated shoulders. One example has the remnants of pinkish gray slip (7.5YR 7/2) on the exterior, the paste is white (10 YR 8/2) with fine micaceous sand. The illustrated example has a band of diagonal reserve-slip on the upper shoulder. The reserve-slip is pinkish white (7.5 YR 8/2) and the paste is red (2.5 YR 5/6) with fine micaceous and medium sand and some coarse limestone.

The only other vessel with reserve-slip is a high neck globular jar (figure 20:D). This jar has a plain flared rim and high vertical neck. There is a band of diagonal reserve-slip around the shoulder. The temper is fine micaceous sand with some medium and coarse grains. The paste is very pale brown (10 YR 7/4) and the slip is white (10 YR 8/1). No exact parallels were evident, however, an undecorated example was found in EB I levels at Hassek Höyük (Hoh 1981, Pl. 22:2). Reserve-slip is not uncommon during the EB I of the Upper Euphrates (Frangipane and Palmieri 1988:542; Hoh 1981, 1984).

Another class of vessel is the pedestal hemispherical bowl (figure 20:E). All four examples have slightly flared plain rims, in one case tapered and in another the rim is thickened and very low pedestal bases. The bowl profile is sinuous and in one case the bowl is lightly carinated. The vessel walls are thin, and the surface is self-slipped in most cases. The rim diameters are all around 16 cm. The paste ranges from pinkish white (7.5 YR 8/2) to white (5 Y 8/2) and pale yellow (2.5 YR 8/3). The temper is fine sand with very little mica, gray mineral, and some coarse limestone inclusions. The best parallels for these bowls are found to the north at Hassek Höyük in EB I contexts (Hoh 1984, Fig 11:10; 1981, Fig. 13,4) and at Arslantepe in level VIB2 (Frangipane and Palmieri 1988, Fig. 19:8 and 26:6). However, the Arslantepe example has a taller pedestal than any of the Hacinebi examples. Frangipane and Palmieri (1988:551) note that this “stemmed bowl” is peculiar to the Upper Euphrates.

The final group of vessels is the tall pedestal goblet, or “fruitstand” (figure 20:F). The rims on the bowls vary from sinuous band-rim, to beaded rims, flared plain rims and one rolled rim. The bowl profiles are most often carinated with nearly vertical upper walls. Many of the vessels are decorated with several parallel grooves either at the top or the bottom of the pedestal and several have traces of red wash (2.5 YR 5/6). The temper is mainly fine micaceous sand with some gray minerals and in some cases also coarse limestone. The paste is most commonly very pale brown (10 YR 8/4; 10 YR 7/4). The overall vessel height ranges from 16.75 to 27 cm. The parallels are again in level VIB2 at Arslantepe (Frangipane and Palmieri 1988, Fig. 19:1-7), only here they are more often red-slipped and burnished. The examples from EB I contexts at Hassek Höyük are plain or decorated with painted geometric motifs (Hoh 1981, Pl. 13:5, 7; Pl. 14:1, 2, 5). Plain examples from EB contexts at Jerablus Tahtani, along the Euphrates in northern Syria, (Peltenburg et al. 1995, Fig. 22; Fig. 27:11) number over 100 and come from mainly tomb or other burial contexts, it is thought that they were probably manufactured as funerary vessels (Ibid. :19). These are considered to be parallels with the “champagne-glass

pots" from Carchemish (Woolley and Barnett 1952:56-59) and with similar vessels from Oylum Höyük (Özgen 1990; Fig. 2:2). In addition, the grooved decoration on the stems is paralleled at Telul eth-Thalathat (Fukai et al. 1974, Pl. XLVIII: 3, 13-15, 17-18). It seems that the tall pedestal goblets have the richest variety of parallels both to the north and south of Hacinebi.

Based on the preliminary parallels described in the preceding section, these ceramics have been provisionally dated to the Early Bronze I (EB I) period. The parallels from Hassek Höyük belong in the EB I levels there, and to the south, the parallels at Jerablus Tahtani are also in EB contexts. Arslantepe VIB2 follows the Early Transcaucasian level (VIB1), which overlies the Uruk level (VIA). Frangipane and Palmieri equate VIB2 with the EB I of the Upper Euphrates region. Additionally, Kurban V is considered equivalent to VIB2 and the EB I of the Upper Euphrates (Algaze 1990). A more full description of exactly how and where Hacinebi fits into the Early Bronze Age of the Upper Euphrates and how this sphere articulates with the contemporary traditions of northern Syria and adjoining regions will be presented in a future report.

TECHNOLOGICAL STRATEGIES IN 4TH MILLENNIUM BC CERAMIC PRODUCTION AT HACINEBI

Kenneth Boden (University of Arizona)

Ceramic analysts often use manufacturing technology to distinguish between the ceramic assemblages of Uruk Mesopotamia and those of the contemporaneous Local Late Chalcolithic (LLC) culture in southeast Anatolia. Wheel made, grit tempered ceramics are considered to be a technological style characteristic of the Uruk culture in southern Mesopotamia. By contrast, the typical ceramics of the Local Late Chalcolithic cultures are seen as being chaff/vegetal tempered, hand made vessels. At Hacinebi, the earlier precontact phases A and B1 have only Local Late Chalcolithic ceramics, while both Local and Uruk Mesopotamian pottery occur together in the contact phase B2. This analysis examines the precontact phase A ceramics from Hacinebi in order to reconstruct Local production strategies before the period of intensive interaction with Mesopotamia. In particular, I reconstruct the production process for fineware vessels to determine whether the Local culture used the potter's wheel as an alternative strategy in parallel with the more common LLC practice of hand building chaff tempered coarse wares.

Previous work at Hacinebi placed both the phase A carinated bowls and small everted-rim jars into a "fineware" category, giving special emphasis to the paste component of the ceramics (Boden 1996; Pollock and Coursey 1995:106; Stein and Mısırlı 1994:155). This in general describes the majority of carinated bowl forms, but is somewhat misleading. A fair portion were tempered with coarse-cut chaff and constructed by coil-building, typical of other phase A Hacinebi ceramics. Thus from a technological perspective, the Late Local Chalcolithic inhabitants of Hacinebi possessed two kinds of carinated bowls: those built primarily by hand, and those thrown on the potter's wheel.

The potter's wheel differs from other methods of turning by possessing a flywheel that uses inertial force greater than the force of friction to keep sustained motion of the wheel (Foster 1959:99; Rice 1987:134). This principal allows a vessel to be "thrown" from a single lump of clay, in contrast with the "slow" wheel (also called the tournette) which employs a primary

construction technique other than throwing, such as coil building. The use of the slow wheel has been widely reported from other Chalcolithic contexts in the Near East (Nissen 1988:46; Trufelli 1994:252).

A number of formal properties (Schiffer 1992) left behind by building activities indicate the use of the potter's wheel. Beyond temper type, features such as parallel drag marks, horizontal and spiral banding, compression ridges, and certain patterns of fracture, vessel diameter, and particle alignment (revealed in sherd profile and radiography) help establish the use of the potter's wheel in Hacinebi precontact phase A fineware bowls and jars. Apart from radiography, however, no feature alone is a convincingly robust indicator of the potter's wheel. Cost and the availability of equipment put limits on the amount of material one can analyze with radiography. For this reason radiography was used on a small sample to test whether inferences of wheel manufacture, based on other formal properties, were accurate.

The squat carinated bowls and small everted-rim jars can be divided into three categories based on temper. Two of these types have vegetable (chaff) inclusions; the other lacks this type of material, but has a fine sandy textured paste. Of the two sherds with vegetable inclusions, one is heavily tempered with chaff, and corresponds with Braidwood and Braidwood's (1960) Amuq F coarse chaff-faced ware. The other has much less vegetable matter and has a sandy texture similar to that of the vessels without chaff.

Sherd Fracture Morphology

Upon comparison of these three temper types with sherd fracture morphology, one pattern is clear (Table 7). Of those vessels built with heavily chaff-tempered clays, 40% have "U"-shaped and or stepped fractures indicating that they were probably built from coils of clay. By contrast, laminar and radial fractures are characteristic of wheel-thrown pottery (Rye 1981), although other activities such as vessel use and disposal may affect these patterns (van der Leeuw 1976). The other two forms do not have fracture patterns characteristic of any specific construction technique.

To examine this problem more closely, sandy and light chaff tempered wares were collapsed into one category as were all fracture patterns other than U-shaped (Table 8). Fisher's exact test showed a statistically significant relationship ($P < .01$) between "U"-shaped fractures and heavily chaff tempered "finewares". There is thus a strong association between tempering agent and primary construction method. Specifically, coarse chaff-tempered ceramics are built by coiling.

Parallel Drag Marks (PDM)

Other evidence, such as the presence of parallel drag marks was less useful in distinguishing potter's wheel manufacture from hand building. Sixty-seven percent of the fineware sherds display parallel drag marks (Table 9). Parallel drag marks are not necessarily unique to wheel thrown vessels. They can be produced by a number of means, including, but not limited to, running the hand or cloth over the surface parallel with the rim. Differences between drag marks produced by the wheel and those created by hand may be indistinguishable on vessel fragments. Perhaps

because of this, no clear pattern is evident when the presence of parallel drag marks is compared for the different forms of temper. Those interested in the reconstruction of ceramic technology should approach their interpretations cautiously where parallel drag marks are concerned.

Slurry Banding

Slurry banding was a third form of evidence used to reconstruct the manufacturing techniques of the phase A finewares. Slurry is composed of fine clay particles suspended in water. Fingers and other objects employed in the forming process distribute the slurry across the vessel. When the vessel is rotated, the distribution takes on a characteristic banding or spiraling pattern. Four fineware sherds, all lacking chaff temper, bore evidence that at least some vessels were rotating rapidly at some point while still wet. A series of bands, formed by slurry, was present on these sherds.

Compression Ridges and Basal Indentations

Banding, however, does not necessarily demonstrate that kinetic energy was used to build the vessel from an initial lump of clay. The use of a potter's wheel must be corroborated by additional forms of evidence. For instance, clay pulled upward while the potter's wheel turns occasionally has compression ridges (Rye 1981:75), also referred to as rills. Three of the six fineware jars (all of which are constructed from clay free of chaff) had this formal property (table 10). These jars may indeed have been produced on the potter's wheel, and are presently the best evidence of phase A pottery produced on the wheel.

In contrast, the carinated bowl forms bore no evidence of compression ridges. However, I did identify an intriguing property on two of the total 42 fineware bowl fragments (this low frequency reflects the number of fineware sherds recovered with the base intact.). On the interior of these bases there was a central indentation. Rye (1981:75) notes that a central cone-shaped prominence is often left behind on the interior base as the clay is opened using the potter's wheel and is normally removed by later finishing activities. I have noted from my own work and that of others that occasionally a slight indentation (and not a prominence) is left behind at the center of the vessel's interior.

Vessel Size and Wheel Manufacture

Henrickson (1991:525) reports that wheel thrown vessels from Godin III cluster between 10 and 16 cm in diameter, and has further commented that the maximum diameter of Godin wheel thrown vessels does not exceed 27 cm (Henrickson, personal communication 1995). These dimensions are well represented in the Hacinebi fineware forms (Figure 21). In addition there is no significant metric difference between the three temper types. The mean diameter of these ceramics is approximately 17 cm, with a minimum dimension of 7 cm and a maximum dimension of 24 cm. Furthermore, the coefficient of variation for these vessels is fairly low ($CV=.243$), suggesting that these vessels are fairly well standardized. Standardization of vessel dimensions is generally interpreted as evidence for specialized production (Costin 1991; Longacre et al.

1988; Sinopoli 1988; Stein and Blackman 1993). The size and standardization of these phase A finewares would thus be consistent with wheel manufacture by craft specialists.

Radiography/Mammography

As noted above in the discussion of slurry banding, it is often difficult to distinguish a pot produced on a potter's (fast) wheel from one produced on the slow wheel or tournette using surface indicators alone (Courty and Roux 1995). A more reliable alternative is radiographic imaging, which provides strong evidence for the use of the potter's wheel by revealing the alignment patterning of temper and air voids inside the fabric or ceramic paste. Figures 22 and 23 are radiographic images of fineware rim and base sherds using the technology of mammography (see Carr 1990:14 for a description of mammography).

In figure 22:A-D, close examination of the base suggests that rotation was involved in the forming process. Away from the carination (in the lower portion of each sherd), elongated particles and voids are oriented diagonally. Closer to the carination, these features align parallel with the carination, i.e. the horizontal axis of the vessel. This suggests that the particles were aligned as the clay was pulled or opened away from the center of the vessel while it was rotating (Rye 1981:74). The outward forces associated with opening the vessels ceased at the carination. However, pressure with the hands did not cease. The clay was squeezed at this point (i.e., at the carination) and pulled upward to form the walls. Particles left behind in the carination echo this event by aligning parallel with the direction of rotation. Figures 22:A and B show the vessel walls and indicate that these inclusions align diagonally between the rim and carination.

Fineware jars also show strong evidence of rotational energy in their construction. Figure 23:C shows the base of a footed fineware jar. All indications from the surface suggest that the vessel was wheel thrown. However, the vessel wall also shows a pattern more reminiscent of paddle and anvil forming. Two anvil-like marks can be seen on the left portion of the sherd. The few voids present in the image are oriented nearly vertically but are slightly skewed from left to right moving toward the base. This suggests at least two stages of forming: one involving rotational energy, the other a paddling technology. Figure 23:D shows strong evidence of rotational energy. The particles and voids have taken on a very strong diagonal alignment, further supporting the inference of the potter's wheel.

Based on the orientation of particles and voids from these images one can speculate about how the rotational energy was applied. Examination of the bases and walls of the vessel interiors shows that the particles are oriented diagonally from left to right, as the eye travels from the center to the outer portions of the vessel. This indicates that the vessel was rotating clockwise. This pattern may be related to handedness, the position of the body in relation to the wheel, and the fine micro-motor habits of the individual potter.

Conclusions

I have presented evidence for two different forming technologies – wheel manufacture and hand building – in the Hacinebi phase A Local Late Chalcolithic finewares. These results demonstrate that the use of the potter's wheel cannot be considered as an exclusively Uruk Mesopotamian technology in the 4th millennium BC. The presence of this technology in the

precontact phase A finewares at Hacinebi indicates that the use of the fast wheel was widely distributed in the Near East at a surprisingly early date, before the Uruk expansion.

Radiography and the analysis of surface traces on the pottery show that the Local Late Chalcolithic culture at Hacinebi used wheel manufacturing as one among several parallel pottery production strategies. Most Local vessels – especially the larger chaff tempered coarse ware bowls and cooking pots – were hand built. However, a small portion of the phase A assemblage consists of highly standardized fineware vessels. The fineware carinated bowls with coarse chaff temper were apparently built by hand using the coiling technique, while the sandy and lightly chaff tempered finewares were thrown on a rapidly rotating potter's wheel. We can thus see evidence for the use of two different but parallel production strategies for the same formal vessel type – carinated fineware bowls.

The fineware ceramics also present interesting evidence for the organization of pottery production in the precontact phase A settlement. The use of the potter's wheel suggests that the fineware ceramics were produced by craft specialists. The distribution of vessel diameter size argues for a developing trend toward standardization, perhaps as an inevitable outgrowth of the potter's wheel. Clearly these inferences require further testing.

It remains unclear why parallel technologies were used to manufacture the exact same ceramic bowl type. This variation may indicate the presence of several contemporaneous specialized workshops in the phase A settlement, each producing the same form by different techniques. Alternatively, the technological variation may be evidence for local exchange of finewares between Local Late Chalcolithic settlements of the Euphrates valley. We are currently in the process of comparing the chemical composition of coarseware and fineware pastes and have initiated a project collecting local clays naturally occurring around Hacinebi. Whether locally produced or not, these ceramics were probably high status prestige goods, based both on their low frequencies and on the quality of their manufacture. This identification of parallel production strategies at Hacinebi is of anthropological interest because it provides a way to examine aspects of social and economic organization that we would not have been able to observe without these sort of detailed technological analyses.

SPINDLE WHORLS AND TEXTILE PRODUCTION AT LATE CHALCOLITHIC HACINEBI

Kathryn Keith (University of Michigan)

This examination of the evidence for textile production at Hacinebi is based on analyses of 102 pierced artifacts from Late Chalcolithic contexts. Of these, 21 were from precontact phase A contexts, and 81 were from Uruk contact phase B deposits. Through a comparison of the phase A and phase B samples, I address three main issues: (1) Which of these objects were used as spindle whorls? (2) What fibers and weights of thread were spun in each phase? Is there any evidence for change from one phase to the next? (3) Who was producing the textiles? Several lines of evidence (including burial goods, relief carvings, seal engravings, later texts, and ethnographic studies) make it clear that spinning and weaving were primarily the responsibility of women in the Ancient Near East (Barber 1991:299). If southern style whorls were present at Hacinebi in phase B, this would be strong evidence that Mesopotamian women, and therefore

entire Mesopotamian families, moved to Hacinebi during the Uruk expansion. (A more detailed discussion of these and other issues regarding the Hacinebi spindle whorls can be found in Keith n.d.)

Spindle Whorls and Other Pierced Objects

At Hacinebi, five types of pierced objects possibly were used as spindle whorls. These include pierced sherd disks (the most common category in both phases), stone disks (the next most numerous type), undecorated hemispheres (most of ceramic, but two of limestone), lenticular limestone disks, and ceramic rings of roughly formed baked clay (see Figure 4:L-O; Table 11). Four criteria served to determine which of the pierced objects were likely to have been used as spindle whorls: form, diameter, perforation diameter, and weight. All five categories of pierced objects had radially symmetrical forms with well-centered perforations, important for spin stability, and all have parallels among known spindle whorl shapes. The Hacinebi pierced objects also conformed to known spindle whorl diameters (Liu 1978) and weights (Barber 1991). The sherd disks, stone disks and hemispheres have perforations within the known spindle whorl range (Liu 1978). However, one of the ceramic rings and two of the lenticular limestone disks have perforations well above the spindle whorl maximum. Based on these criteria, then, ceramic rings and lenticular limestone disks were not included in the spindle whorl sample. The 88 Late Chalcolithic spindle whorls from Hacinebi consist of sherd disks, stone disks, and hemispheres; 21 of these were from phase A and 67 from phase B.

Spinning Products

Spindle whorls may be used when spinning or plying yarn. Spinning involves two actions: drawing fibers out from a mass of prepared fiber and twisting them together. Plying is the twisting together of two or more strands of yarn. Two main factors are involved in the selection of the type of whorl used to spin a particular thread. These are thread thickness (which is determined by the number of fibers drawn out from the fiber mass) and fiber length (which varies from fiber to fiber).

Several factors can influence the amount of twist a given yarn needs. Fine yarns, for example, require more twist than coarse yarns (Raven 1987:19). Some fibers may require more twist than others (e.g., goat hair needs more than wool; Hochberg 1977:67). More twist may be needed for yarns intended for netting, cord, or for warp in weaving. However, either too little or too much twist can cause problems. If undertwisted, the fibers do not bind together, resulting in a weak yarn, while an overtwisted yarn will develop kinks, tangle and knots. The amount of twist is controlled in part through the speed of rotation, which can be affected by the diameter of the spindle whorl used. A small diameter whorl has a faster (but shorter duration) spin, and so would provide the additional twist needed for fine threads; a large diameter whorls spins more slowly for a longer time, and would be more useful for coarse threads or for plying. The other critical factor is the amount of tension placed on the yarn. The yarn must be taut for an even twist. If there is too little tension, the twist will be uneven, with some undertwisted and some overtwisted areas. If there is too much tension, the fibers are pulled out to their ends before they can twist. The shorter the fiber, the faster it reaches its ends, and so the more critical the

correct amount of tension becomes. The amount of tension can be controlled in two ways. One is through the selection of the spinning method (a supported spindle places less tension on the yarn than a drop spindle, for example). The other way is through the weight of the spindle whorl.

Fibers available at Late Chalcolithic Hacinebi include wool and goat hair (both short fibers) as well as flax (a long fiber). A whorls of about 8 gm would be suitable for spinning the wool (Ryder 1983:748), while heavier whorls – as much as 150 gm or more – would be needed to drop spin coarse thread from long flax fibers (Barber 1991:52) or for plying. Figure 24 shows the distribution of the Hacinebi whorl weights in phase A and phase B. The whorl weights in both phases are distributed bimodally, in light (8-16 gm) and medium-light (17-33 gm) weight categories, with some heavier outliers (up to 84 gm). The two main weight categories would be suitable for spinning fine and medium weight threads of wool and goat hair. The heavier whorls could have been used for plying or for spinning flax. The relatively complicated preparation process for flax (requiring several steps, special tools, and some expertise; Forbes 1956:150) makes it unlikely to have been a minor or occasional spinning product. Given the small number of heavy whorls in both phases, it is more likely that they were used for plying than for spinning flax. The spindle whorl evidence suggests, then that wool and goat hair were spun and plied in both phases, but that flax was not being used.

There is no evidence for a major change from phase A to phase B in either the fibers or the weights of thread being spun; on the contrary, there appears to be a great deal of continuity in spinning practices from the precontact to the contact phase. Overall, there are more whorls from phase B than from phase A. The vast majority of phase A whorls (90%) were found in the western area of the site, and most of those in Op.17. However, relatively little phase A excavation has been conducted as yet; little significance can be attached to the distribution of phase A whorls at this stage of research. In phase B, there are significantly more whorls from the north area of the site than from operations in the south or west. This may be due in part to differences in relative excavated amounts. The southern area was dominated by a large stone wall and mudbrick platform., while the north had several domestic structures. Such differences in the amount and location of residences across the site would be expected to affect the distribution of whorls.

Changes in the distribution of particular kinds of whorls could be indicative of changes in the production or control of spinning and its products. If a particular area of the site were engaged in the production of a particular spinning product, we would expect to see a significantly higher proportion of whorls of the necessary weight in that area. In both phases, however, light, medium and heavy whorls were found in roughly the same proportions in all three areas of the site. Based on current evidence, it appears that households across the site were doing a similar range of spinning tasks. Whatever influence Uruk contact may have had at Hacinebi, it does not appear to have affected local spinning practices.

Mesopotamian Women at Hacinebi

I compared the Hacinebi spindle whorls with excavated whorls from Susa (LeBrun 1978) and Tepe Farukhabad (Wright 1981), and a small unpublished sample from mostly surface and scrape contexts of the Uruk mound at Abu Salabikh (provided by Susan Pollock). Figure 25 shows the weight distribution of whorls from T. Farukhabad and Abu Salabikh, and the diameter

and thickness of whorls from Susa (based on my measurements of published drawings). While the sample sizes are extremely small, all three sites appear to have light and medium weight whorls; Abu Salabikh also has on heavier whorl. The light whorl at Abu Salabikh is a stone disk, while hemispheroid whorls dominate the medium weight category. At T. Farukhabad, light whorls are clay ovoids and medium whorls are stone disks. At Susa, stone appears to be preferred for light whorls and clay for medium weight whorls. At Hacinebi, sherd disks are the dominant form in all weight categories. Even though similar weights of thread were probably being made in southern sites during the Uruk period and at Late Chalcolithic period Hacinebi, somewhat different whorl styles and materials were used from site to site for the specific weight categories. This suggests that common fibers were being used to fill similar needs.

Is there evidence for the presence of people using specifically southern-style whorls at Hacinebi in the contact phase? Whorls from Susa are plano-convex or concave-convex, made of stone or clay, and often have some decoration. They are similar in form to Hacinebi's hemispheres; however, this is a minor form at Hacinebi, is never decorated, and appears in precontact phase A as well as phase B. T. Farukhabad whorls are stone disks and clay ovoids (some with incised decoration). Hacinebi has no ovoid whorls, and the stone disks were present in both phases. Abu Salabikh whorls include mostly undecorated disks, lenticular forms, and plano-convex and concave-convex forms. Some of these are similar to the Hacinebi whorls. However, the significant continuity in whorl forms and weight distributions at Hacinebi from phase A to phase B suggests that the similarities did not result from contact. There is no evidence, based on the spindle whorls, for an influx of Mesopotamian women at Hacinebi in phase B; rather, the continuity in the whorls from Hacinebi indicates that local women were doing the spinning in both phases. This implies that entire Mesopotamian households did not live at Hacinebi. It is possible that Mesopotamian men moved to the site; if so, the spindle whorl evidence suggests they married local women.

EARLY METAL TECHNOLOGY AT HACINEBI TEPE

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Discoveries in Southern Turkey along the upper Euphrates valley, Northern Syria, Amuq plains and Cilicia of sites dating to Late Chalcolithic and Early Bronze Age (the fourth and early third millennia BC) represent the emergence of the earliest examples of all phases of metallurgical technologies, except for iron, which appeared as a smelted metal much later. Smelting of mixed ores, sulphide ores, alloying, and casting began to appear during these early periods. It is possible to see the chronological development of metallurgy from small cottage workshops to industrial scale production (Braidwood et al 1951, Esin 1986 Ganstang 1953, Harmankaya 1992, Kun et al 1983, Özbal 1982, 1986, Palmieri et al 1995, Yalçın et al 1992).

It is logical to expect such early achievements in metallurgy in these regions mainly due to the abundance of material resources at hand and the high level of cultural contact with neighboring regions through both trade and the apparent movement of people. However, there is still considerable debate about the roles that urbanization in the Anatolian highlands and international trade might have played in the early development of complex metallurgical technologies. Evidence of Uruk presence in the peripheral regions of Mesopotamia is frequent;

certainly one reason for their interest was to exploit metals not available locally in the southern alluvium. However, it is not certain how much technology transfer from Mesopotamia to the Highlands occurred (Frangipane 1985, 1991, Moorey 1982, Yakar 1984, 1985).

Recent excavations in the region have produced new archaeometallurgical discoveries which may be helpful in the understanding of this problematic period. With the increase in number and diversity of the metallurgical inventory uncovered at the Hacinebi excavations, it is now possible to evaluate the site's importance during the Late Chalcolithic and Early Bronze Age. Hacinebi is strategically located on the borderline between North Syria and the metalliferous highlands of the Anatolian plateau at the gateway to the Upper Euphrates Valley. It is also in a location to have east-west interactions with the Amuq Plain as well as the Cilician cultures further to the west. Hacinebi was situated at a critical juncture of two of the main trade routes connecting Mesopotamia, the Upper Euphrates Valley, and Cilicia.

The Hacinebi excavations have so far yielded a chisel, a pair of earrings (possibly silver), a copper pin fragment, crucible and mold (ceramic) fragments, two ore samples and a slag sample. These finds span Late Chalcolithic (LC) phase A (early precontact), B1 (late precontact), B2 (the phase of intensive contact with Uruk Mesopotamia), and the Early Bronze I period, providing evidence for a millennium-long tradition of metallurgy at the site. With the exception of a smelting furnace, all of the elements of complex metallurgical technology are present in this inventory. All the metallurgical materials were recovered from within the settlement, which seems to have been the practice in the region. Since the finds were not concentrated at any one particular area but were recovered from different locations around the excavated site, the metalworking technology was probably not monopolized by a small number of craftsman but instead must have been practiced widely throughout the settlement in many cottage workshops. During this period, metallurgy may not have been a very specialized technology; if the raw materials were available, it seems that local metalsmiths were able to create the needed items.

The chemical analysis of major, minor and trace element constituents of Hacinebi metallurgical material are listed in Table 12. This paper will discuss each type of material separately in relation to metallurgy in the region at large and comment about the possibilities of technology transfer.

Ore Samples

The preliminary study of the small nodule-shaped Late Chalcolithic ore sample (HN12939) from a contact phase B2 context shows that it is a polymetallic ore, composed mainly of galena and secondary ore of copper, chalcosite. This sample contains over 40 % lead, over 30 % copper as major components, with zinc and iron as minor components, and trace amounts of nickel. It is difficult to speculate on the possible origins of this polymetallic ore; however, its existence is in accordance with the regional tradition. It has been clearly demonstrated by Palmieri that most of the ore samples recovered at Arslantepe VIA and VII levels were also polymetallic in nature with Ni, As and Sb as minor components. Such ores are abundant in Eastern Turkey (Palmieri and Sertok 1993). Smelting of such polymetallic ore was widespread technology in Anatolia throughout history. The method involves a multi-stage operation of smelting, melting, and refining (Caneva et al 1990). Likewise, the ore samples recovered from the Late

Chalcolithic/Early Bronze Age settlements of Norsuntepe are also oxidized polymetallic copper ores processed by a multi-step smelting operation.

A small amount of polymetallic Hacinebi ore was charcoal block assayed by Bryan Earl. After two assaying operations, a silvery-looking small metallic bead was obtained. The ratio of Cu/Pb in this bead was 1.21, indicating over 40% lead. Further simple melting and oxidizing experiments on the charcoal block improved the Cu/Pb ratio to 4.42, leaving only about 8% lead, since most of the lead was easily sweated from the copper matrix at high temperatures and was oxidized. Continued refinement would eventually have yielded a pure workable copper metal.

The second ore sample (HN12285) was rather pure malachite, recovered in the form of an incrustated smear at the base of a fragment of an Uruk Mesopotamian style bevel rim bowl (contact phase B2). It is difficult to explain how such an incrustation could have occurred since the pottery fragment had not been burned or exposed to any high temperature smelting or melting operations. The bowl could have been used as a storage vessel or as some sort of a measuring container. Chemical analysis of the incrustation was consistent with a high quality copper ore devoid of most other common impurities except for an unusually high level of nickel, consistent with many of the other Anatolian ore sources. This could very well be the type of ore utilized in the manufacture of the chisel, which contains 1.24 % nickel at the working end (Stein, et.al., 1996).

Lead isotope studies on artifacts from various Chalcolithic and Early Bronze Age cultures of Cilicia, the Amuq Valley, and specimens from Tello and Assur indicate that the ores from the Taurus region may have been utilized in these areas (Yener, et al. 1991, Yener 1995).

Metal Artifacts

The Hacinebi chisel (HN6561), dated to Late Chalcolithic Phase A, is contemporary with Amuq F and Arslantepe VII (Stein et al., 1996). An interesting feature of this unusual chisel is its high Ni content. Nickel and copper can form a solid solution (alloy) in any proportion. Nickel is generally introduced into copper accidentally during the smelting of nickel-containing copper ores. The chemical composition of this chisel can be closely related to the type of ore recovered in the bevel rim bowl. This clearly indicates that the chisel was produced locally. Similar artifacts, classified as reamers by Braidwood, from Amuq dated to Phase G also have high levels of nickel (Braidwood et al 1951). İkiztepe in the North (Özbal and Özköşemen 1987) and Arslantepe in the East also yielded copper and bronze artifacts with high nickel content. Another interesting feature of this chisel is that it was produced locally by a Hacinebi metalsmith many years before the Uruk colonization took place. Obviously, the technology for the production of high quality functional metal tools was present in proto urban Hacinebi.

The highly oxidized fragmentary pin (HN13211) is almost pure copper (Table 12) with traces of lead, nickel and iron. This Early Bronze Age I object corresponds to the Arslantepe Level VIB2, the period when the smelting of polymetallic ores came to an end; instead mainly copper/iron sulfides began to be utilized (Palmieri and Sertok 1993). Until more metallurgical artifacts are recovered, it is difficult to predict if such a trend extends all the way south to Hacinebi.

A pair of earrings found in an infant jar burial dated to Late Chalcolithic phase A has not yet been thoroughly analyzed. However, based on a preliminary examination, there is a strong

chance that the earring is silver (Stein, et al. 1996). During the fourth millennium, there is evidence of silver both as decorations on the Arslantepe metal hoard level VIA and on the helmets of statues from Amuq G levels (Palmieri A. 1985, Yener 1995).

Crucible Samples

Due to the very fragmentary nature of the crucible samples, it was not possible to predict their size and shape. One fragment (HN12264) dates to the late precontact phase B1, while another (HN8061) derives from an Uruk pit in the contact phase B2. The crucibles had all been exposed to high temperatures and had slaggy accretions on the inner surface. It is possible to see the penetration of heat deep into the crucible fabric, vitrifying the inner surface. Chemical analysis was carried out on samples randomly collected from the slag accretion or vitrified inner surfaces. The high levels of copper (Table 12) are the contamination left from smelting, melting or refining operations. Arsenic, lead and zinc are present in trace amounts with no detectable quantities of tin or antimony. Further studies on crucibles will be conducted to understand the nature of the smelting processes that have taken place.

Slag Sample

The slag sample from Hacinebi (HN12097) is a flat circular nodule with a 3 cm diameter. It is quite lightweight and has a very vesicular appearance indicating low metal content. Chemical analysis (Table 12) shows that the sample is free of most trace elements, including copper. The results are very similar to the chemical analysis of Chalcolithic slag samples from Değirmentepe (Özbal 1986). Such slags are the remnants of low temperature smelting operations where fairly pure oxidized copper ores were used.

Mold Sample

A ceramic mold fragment (HN6549), which was recovered from the Precontact Phase A together with the chisel, provides additional strong evidence for independent local metallurgical technology. The mold was exposed to extremely high temperatures and must have been used for a long time since the charring of the fabric extends all the way to the bottom of the mold. The inner surface of the mold had small incrustated green specks, most likely oxidized remnants of the casting activity. Chemical analysis of these small specks yielded very high levels of copper (Table 12), clearly indicating that the mold was used for casting copper. Some iron together with traces of nickel, arsenic, and zinc were also found, showing this mold to be consistent with the chemical analysis results of the other metallurgical materials. Such pure oxide on the mold may provide additional evidence for the use of quite pure oxide ores of copper.

Conclusion

Some archaeologists have suggested that complex technological achievements such as metallurgy were not possible without the support of an urbanized community (e.g. Heskell 1983). Proponents of this theory argue that such developments were possible only when there was a

surplus of food and the society had acquired its ruling class and clergy. Under the sponsorship and control of economic and political elites, the search for luxury items became an inevitable passion. Elite demand is seen as the stimulus for technological achievements and innovations.

Despite the attractiveness of this scenario, it is not supported by recent evidence. On the contrary, all throughout history, all social and technological activities associated with mining and metallurgy seem to have occurred in non-elaborate environments. Ancient mining and metallurgical sites were almost always located in sparsely populated areas near the mines themselves. The miners and metallurgists seem to have lived in quite substandard conditions. Similarly, workshops of metalsmiths are no urban palaces.

Almost all of the exquisite metal treasures of the ancient world were created in such substandard environments. It is clear that the technology of metal working existed where the resources were available; only financial backing was needed to make it worthwhile to create metal objects. Once the chemical procedures of smelting oxide or sulphide ores and alloying were mastered and the mechanical properties of the metals were recognized, the creation of a metal treasure depended on local demand. Since very few elaborate metal objects have been recovered in Anatolia during the Chalcolithic and Early Bronze Age I, it is quite clear that the demand for treasures did not exist. Rather, the demand was for functional tools and simple weapons.

There is no doubt that the economically better developed Mesopotamian urban cultures were most interested in the metal resources of their peripheral regions such as Anatolia. The demand by the Mesopotamian ruling class for an elaborate inventory of weapons and precious metals was extremely important because these prestige goods expressed dominance and power. Lacking the natural resources to conduct metallurgy in their own area, they sent traders to Anatolia to place their orders for metal treasures.

It is interesting to note that the earliest tin bronzes do not appear at the so-called metallurgically highly advanced urban cultures of Mesopotamia. No tin bronzes in Mesopotamia are recognized before the ED III period. On the other hand, many true tin bronze artifacts have been discovered in eastern and southeastern Anatolia at Alisar, the Amuq, Mersin, and Tarsus, centuries before the technology could be transferred to Mesopotamia. The basic reason for this development is mainly due to the fact that these sites were much closer to Kestel/Göltepe, which is one of the known tin sources of the Early Bronze Age (Yener et al 1989).

With all the metallurgically related materials recovered from Hacinebi tepe, it is now possible to confirm the existence of a local metal technology which developed in accordance with the traditions of the neighboring regions. The ores that were in use came mainly from Anatolian sources. The Hacinebi metalsmiths knew how to smelt, purify, and cast both oxide and polymetallic ores of copper, but there was no evidence of alloying. The Hacinebi metalsmiths were practicing their profession and producing functional tools long before the Uruk arrival. Since neither furnaces nor tuyeres were uncovered, one can assume that the smelting operations were most likely carried out in crucibles using blow pipes to provide the necessary draft.

SUMMARY AND CONCLUSIONS

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With the five excavation areas where work took place in 1996, approximately 1400 m² of the site have now been exposed. The excavations and laboratory analyses of the fifth field season have contributed substantially to our understanding of the Achaemenid/Hellenistic, Early Bronze Age, and Late Chalcolithic occupations of Hacinebi.

Excavations in op. 13 have exposed an additional portion of the large, well planned Hellenistic building terraced into the south slope of the mound. This structure extends at least 400 square m.; its full dimensions, while certainly larger than that, remain unknown. The discovery of Achaemenid tomb 38 beneath this building complements the contemporaneous tomb 28 in nearby operation 7. These two richly furnished, high status burials provide our only certain evidence to date for a 5th century BC occupation or use of Hacinebi.

The most significant and unanticipated discovery of the 1996 field season was the presence of a previously unknown Early Bronze Age I ca. 3100-2700? BC use of the mound after its abandonment at the end of the Late Chalcolithic. Two burial areas at the north and south ends of the mound (ops. 12, 18) yielded evidence for a variety of burial practices which show great continuity in mortuary practices with both the infant jar burials of the fourth millennium and the limestone cist tombs of the mid-late third millennium BC. The number and variety of both adult and infant EB I burials on the northeast and southeast mound slopes suggest that the associated settlement was located close by, most likely beneath the present day village of Uğurcuk. This evidence for an EB I presence is important in showing that there was continuity in the settlement of the area between the late fourth and early third millennia BC.

The EB I burial and erosional deposits in op. 12 are also important for the fact that they seal off and protect the uppermost Late Chalcolithic occupation levels at Hacinebi; everywhere else at the site, these deposits had either eroded away or been truncated by later Achaemenid/Hellenistic construction. As a result, we finally have clear evidence for the peaceful abandonment of the mound at the end of the fourth millennium. This is consistent with the evidence for a peaceful transition at Kurban Höyük (Algaze 1990):34,120-121, and contrasts with the apparent violent destruction of the Late Chalcolithic settlement at Hassek (Behm-Blancke 1993, Behm-Blancke 1981).

The 1996 season also contributed to our understanding of Late Chalcolithic occupation at Hacinebi. Of particular note was the recovery of additional in situ contact phase B2 deposits in residential areas of the north (op. 15) and south (op. 12) areas of the mound. Finds of eye idols and metallurgical artifacts/raw materials have contributed to our understanding of ideological and economic organization in the Late Chalcolithic settlement. The exposure of the north terrace in op. 14 showed that the platform-and-terrace complex of elite or public architecture in the pre-contact phase at Hacinebi was significantly larger than previously suspected.

Ongoing laboratory analyses of the ceramics, lithics, small finds, and metallurgical objects have contributed substantially to our understanding of the chronology and economy of the Late Chalcolithic settlement. The stylistic analyses of the ceramics have considerably refined the site chronology - most notably by identifying potential Local Late Chalcolithic diagnostic types that may be useful in differentiating between Late Chalcolithic phases B1 and B2. Technological analyses of the ceramics have begun to characterize the productive organization and technological

style of the local Anatolian inhabitants of Hacinebi in the precontact phase A. This will provide us with a baseline for comparative studies of the impact of the Uruk Mesopotamian presence in the later phase B2 on local ceramic styles and technology. Perhaps the most significant outcome of the technological study has been the identification of the use of the potters wheel in the manufacture of precontact phase A fineware ceramics. This indicates that the use of the wheel at Hacinebi was not the result of the Uruk expansion.

Examination of the spindle whorls from phases A and B has shown a high degree of continuity in the organization of textile production at Hacinebi, with no evidence for either intensification or a shift to the weaving of finer/higher quality cloth in the contact phase. This is significant because it is consistent with the idea that the Uruk presence at Hacinebi did not necessarily transform the local economy in the ways predicted by world systems models of interregional interaction.

Finally, the analysis of metallurgical artifacts from the site has shown that a millennium long indigenous tradition of copper working existed at the site, beginning in the Late Chalcolithic phase A and lasting through to the Early Bronze I period. We now have archaeological documentation for every stage of the copper production process at Hacinebi from the initial procurement of ores through local exchange, through the smelting and casting processes, to the production of finished goods. In addition, we now have preliminary evidence for the presence of silver at Hacinebi in the early 4th millennium (although further tests are required to confirm this).

With the removal of most of the Late Chalcolithic phase B occupation levels at Hacinebi, we are now in a position to make broad horizontal exposures of the early precontact phase A deposits in all three main excavation areas of the site. This will be the main focus of the planned 1997 excavations.

Notes

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Table 1: Op. 14 Sequence

Level	Context	Descriptions	Phase	Stylistic Affiliation	Constituent Deposits
14.00	pits		B2	Mixed Uruk and LLC	Loci 23, 24
14.10	architecture, including floor deposits		B2	Uruk	Loci 15, 19, 20, 21, 22, 29, 32
14.20	pits, surfaces, erosion layers		B2	Uruk	Loci 26, 27, 28, 38
14.30	pits, erosion layers		B2	Uruk	Loci 50, 55, 77, 80, 82, 91, 142, 157
14.40	'squatter' architecture and trash deposits		B2	mixed Uruk and LLC	Loci 40, 49, 53
14.50	'abandonment'				Locus 63
14.60	'yellow brick' architecture		B2	LLC	Loci 70, 72, 78, 92
14.70	'red brick' architecture		B1	LLC	Loci 121, 125, 132, 135, 136, 137, 138
14.75	trash deposit		B1	LLC	Loci 146, 167
14.80	terrace		B1	LLC	Locus 119
14.90	wall collapse and wash deposits				Loci 148, 158, 159, 162, 166

Table 2: Op. 14 assemblage summary by building level.

*includes shatter, chunks, spalls, and nodules.

Level	N	Flake	Canaanite blade	Simple blade	Simple blade core	Flake core	Misc. debris*
14.10	157	113	5	15	1	5	19
14.20	329	243	15	18	4	9	40
14.30	1767	1269	36	269	85	44	64
14.40	92	61	12	3	0	3	13
14.60	77	44	14	0	0	2	7
14.70	60	45	6	2	0	0	7
14.75	556	412	44	9	0	18	73

Table 3: Comparison of Canaanite and Simple Blade distributions in Uruk/Later LLC and Earlier LLC contexts

	Canaan blades			Simple blades			
	N	X	S	N	X	S	
Uruk	69	3.06	.57	Uruk	12	1.72	.39
LLC	66	2.85	.49	LLC	191	1.40	.29
df.=133		t ₀₁ =	2.326	df.=201	t ₀₁ =3.636	t=3.636	
		t ₀₂₅ =	1.980				
			t=2.326				

Table 4: Op. 14 Lithic production and decortification indices.

Level	assemblage size	Simple blade	Simple blade cores	core production flakes	total	production index	total flakes and shatter	decortication flakes (<50% cortex)	decortification index
14.10	157	15	1	8	24	15.3	125	18	14.4
14.20	329	18	4	5	27	8.2	262	46	17.6
14.30	1767	269	85	100	454	25.7	1303	176	13.5
pit 50/77/142	1348	228	73	77	378	28.0	979	120	12.3
14.40	92	3	0	0	3	3.3	68	18	26.5
14.60	77	0	0	0	0	0.0	47	10	21.3
14.70	60	2	0	2	4	6.7	51	5	9.8
14.75	556	9	0	9	18	3.2	466	73	33.6

Table 5: Stylistic Affiliation of Pottery (in Percent) broken down by Building Level
Pottery Percentages

Level	Uruk	LLC	Indeterminate	n
14.10	70.30	22.80	06.90	421
14.20	68.56	23.61	07.83	959
14.30	74.95	11.73	13.32	2405
14.40	41.53	52.49	05.98	351
14.50	08.93	90.18	00.89	29
14.60	12.17	81.74	06.09	329
14.70	20.00	72.46	07.54	309
14.75	07.36	91.77	00.87	321
14.80	08.70	82.61	08.69	23

Table 6: Chronologically significant LLC pottery percentages by phase

Level	IIg (B14)	IIIi (B31)	Va (B34)	VIIId (B64)	XVIAa (J19)	XVIE (J7)	IIa (B5)	IIId (B6)	IIb (B15)	XIIa (J2)
14.10	2.70 %	1.35 %	0.00 %	0.00 %	1.35% %	1.35% %	13.51 %	14.86 %	02.70 %	16.22 %
14.20	1.62	1.08	1.62	0.54	0.54	3.24	18.92	11.89	02.70	18.38
14.30	4.00	0.00	1.00	0.50	1.00	4.50	12.50	10.50	03.50	11.00
14.40	3.27	0.00	1.96	0.00	1.96	1.96	26.80	13.73	04.76	08.50
14.50	4.12	2.06	4.12	1.03	2.06	1.03	18.56	14.43	01.03	09.28
14.60	5.88	0.53	0.54	0.00	2.67	2.67	20.32	15.51	03.21	06.42
14.70	4.15	1.66	5.39	1.25	2.49	4.15	08.71	21.58	01.25	06.22
14.75	4.39	4.39	6.83	0.49	5.85	1.95	03.90	30.24	00.00	01.95
14.80	5.26	5.26	5.26	0.00	5.26	0.00	05.23	31.58	00.00	10.53

Table 7: Fracture patterns and temper type for carinated bowl and small inverted-rim jars.

Fracture Type	Sandy	Light Chaff	Heavy Chaff	TOTAL
Undiagnostic	20	6	7	33
Laminar	2	2	2	6
Radial	1	0	0	1
U-shaped/ stepped	1	1	6	8
Total	24	9	15	48

Table 8: Fischer's Exact Test $P < .01$: Probability is less than 1% that the association of U-shaped fractures to heavy chaff tempered clay is random.

Fracture Pattern	Heavy Chaff	Sandy and Light Chaff	Total
U-shaped	6	2	8
Other	9	31	40
Total	15	33	48

Table 9. Parallel drag marks (PDM) in relation to temper type.

PDM	Sandy	Light Chaff	Heavy Chaff	Total
Interior	8	1	3	12
Exterior	3	1	2	6
Both	7	6	1	14
None	6	1	9	16
Total	24	9	15	48
% with PDM	75%	89%	40%	67%

Table 10. Additional wheel related features.

Qualitative Feature	Sandy	Light Chaff	Heavy chaff	Total
Compression Ridge	2	0	0	2
Basal Indentation	1	1	0	2
Bubble in Carination	1	1	0	2
Banding	3	0	0	3

Table 12.

HN num.	Description	Op.	Locus	Lot	Phase	Ag	Sn	Pb	As
6561.1	Chisel: Butt end	5	136	264	LC-A	0.02	nd	0.03	0.06
6561.2	Chisel:working edge	5	136	264	LC-A	0.03	nd	0.05	0.14
13211	Pin	18	5	34	EB-I	0.06	nd	0.15	nd
12285	Malachite in bowl	14	80	118	LC-B2	nd	nd	0.04	0.29
12939	Polymetallic ore	13	66	110	LC-B2	nd	nd	43.1	nd
8061	Crucible	16	37	57	LC-B2	nd	nd	0.06	0.33
8051	Crucible	16	54	51	LC-B2?	nd	nd	nd	0.04
12264	Crucible	14	167	279	LC-B1	nd	nd	0.08	0.37
12097	Slag	12	116	316	LC/EB-I	nd	nd	0.06	0.32
6549	Mold fragment	5	130	259	LC-A	nd	nd	nd	0.16
		Sb	Ni	Zn	Co	Fe	Cu	Bi	
		0.08	0.17	0.14	nd	0.6	58.1	0.07	
		0.28	1.24	0.09	nd	0.56	90.5	0.18	
		nd	0.12	nd	nd	0.16	93.9	nd	
		nd	2.98	0.01	0.01	2.98	22.1	nd	
		nd	0.02	4.27	nd	2.3	30.2	nd	
		nd	0.2	0.01	nd	4.71	8.29	nd	
		nd	0.14	0.06	0.02	6.2	2.86	nd	
		nd	0.09	0.02	nd	3.62	14.1	nd	
		nd	0.18	0.02	nd	9.51	0.05	nd	
		nd	0.17	0.01	nd	2.52	27.5	nd	

LCB PHASE									
HN#	Op-loc-lot	Mater	Form	Diam	Thick	Perf	%-Wt	Weight	
664.00	1-56-55	sherd	disk	4.42	0.96	1.14	100%	19.8	
561.00	1-65-64	sherd	disk	4.23	1.35	1.12	54%-15.7	29.1	
828.00	1-81-86	sherd	disk	4.50	0.65	0.96	60%-9.2	15.3	
2188.00	4-34-87	sherd	disk	3.47	1.10	inc 36	100%	10.0	
3608.00	4-101-88	sherd	disk	4.48	0.60	1.03	100%	11.5	
4739.00	4-115-31	sherd	disk	7.08	1.97	inc 48	55%-60.6	110.2	
5632.00	4-132-305	sherd	disk	5.88	0.85	1.00	53%-16.8	31.7	
4973.00	4-153-344	sherd	disk	7.20	0.90	0.87	69%-45.3	65.7	
5631.00	4-158-360	sherd	disk	4.00	0.66	0.70	32%-4.6	14.4	
5650.00	4-177-405	sherd	disk	3.35	0.96	0.80	100%	10.4	
5679.00	4-174-407	sherd	disk	3.90	1.00	1.10	40%-7.5	18.8	
5699.00	4-178-407	sherd	disk	3.55	1.05	1.00	53%-6.9	13.0	
6380.00	4-181-432	sherd	disk	3.62	0.80	1.00	55%-6.2	11.3	
6381.00	4-181-432	sherd	disk	3.45	0.80	1.07	56%-6.1	10.5	
5613.00	4-183-437	sherd	disk	4.05	0.76	1.00	54%-7.6	14.1	
5479.00	5-97-187	sherd	disk	4.15	0.94	0.84	100%	16.7	
2356.00	6-44-45	sherd	disk	3.94	0.55	0.94	100%	10.9	
3301.00	6-51-83	sherd	disk	3.86	0.87	0.97	100%	14.6	
4631.00	6-51-83	sherd	disk	3.55	0.80	1.14	50%-6.2	12.4	
4056.00	6-93-118	sherd	disk	3.77	0.90	1.10	100%	[11.5]	
6619.00	6-116-134	sherd	disk	3.60	0.90	inc 25	100%	14.2	
2251.00	7-25-41	sherd	disk	3.60	1.20	0.94	44%-[7]	[15.8]	
6243.00	10-74-57	sherd	disk	4.72	0.73	0.97	58%-12.4	23.0	
6433.00	11-44-91	sherd	disk	3.82	1.06	1.06	100%	17.7	
6448.00	11-49-97	sherd	disk	4.20	1.00	1.00	53%-10.6	20.0	
6448.02	11-49-97	sherd	disk	4.04	0.50	0.76	47%-5.1	10.9	
7060.00	11-109-216	sherd	disk	7.35	1.70	0.82	100%	84.0	
7819.00	14-17-35	sherd	disk	3.22	0.81	0.86	100%	9.1	
7829.00	14-26-38	sherd	disk	4.20	0.90	1.27	100%	18.1	
7837.00	14-28-40	sherd	disk	3.80	0.80	1.20	100%	12.4	
8972.00	14-41-98	sherd	disk	3.50	0.71	0.94	100%	10.9	
8582.00	14-50-73	sherd	disk	5.40	0.90	0.78	50%-12.6	25.2	
8585.00	14-50-73	sherd	disk	3.80	0.75	inc	100%	13.0	
8413.00	14-80-118	sherd	disk	5.93	1.16	1.01	100%	54.4	
9142.00	14-95-150	sherd	disk	7.20	1.00	0.76	28%-12.4	44.3	
8660.00	16-51-84	sherd	disk	4.20	1.05	0.95	100%	23.8	
8043.00	16-54-51	sherd	disk	4.77	0.70	0.90	100%	23.2	
8828.00	16-69-96	sherd	disk	3.92	0.74	1.08	100%	13.6	
8888.00	16-70-108	sherd	disk	4.16	0.80	1.14	50%-9	18.0	
9266.00	16-71-127	sherd	disk	8.00	0.80	1.15	50%-41.8	83.6	
9638.00	16-77-138	sherd	disk	3.94	1.46	0.83	100%	22.3	
7493.00	17-51-30	sherd	disk	4.25	0.85	0.93	100%	16.1	
5310.00	4-158-357	limestone	lenticular	4.47	0.90	0.86	100%	17.7	
5383.00	4-165-380	limestone	lenticular	6.00	1.51	0.89	100%	38.8	
2337.00	6-44-45	limestone	lenticular	7.53	1.50	0.97	90%-89.2	99.1	
3391.00	6-84-102	limestone	lenticular	6.00	1.45	0.33	[15]	[45.2]	
3634.00	6-84-102	limestone	lenticular	5.60	1.14	0.83	47%-17.4	37.0	
3648.00	6-84-102	limestone	lenticular	6.80	1.00	32%	[10]	[31.4]	
5602.00	10-54-35	limestone	lenticular	8.83	1.90	1.48	100%	41.6	
7031.00	11-105-205	limestone	lenticular	4.94	1.75	1.10	50%-20.8	158.2	
8281.00	14-40-85	limestone	lenticular	8.80	4.00	1.60	22%-34.8	36.7	
8580.00	14-50-73	limestone	lenticular	4.54	1.55	0.74	90%-33		
8800.00	16-51-85	limestone	lenticular	12.50	2.90	1.30			

Table 11. Pierced objects at Hacinebi.

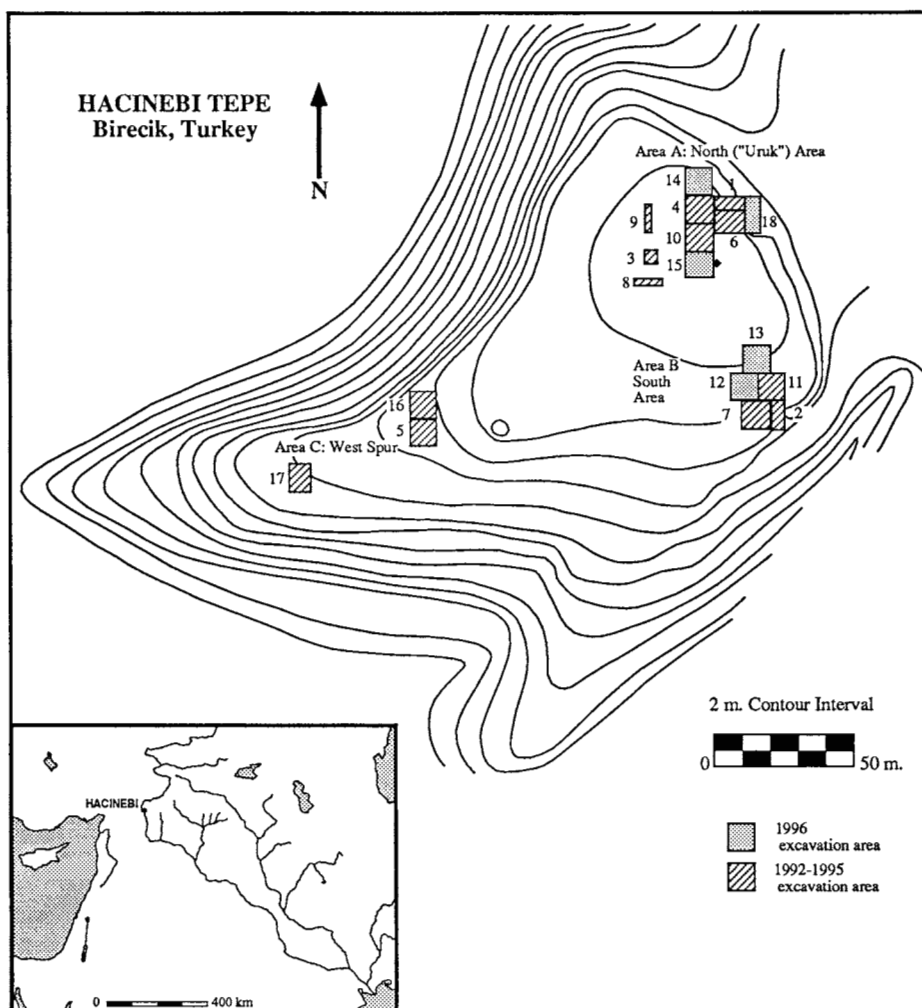


Fig. 1. Topographic map of Hacinebi, showing main excavation areas.

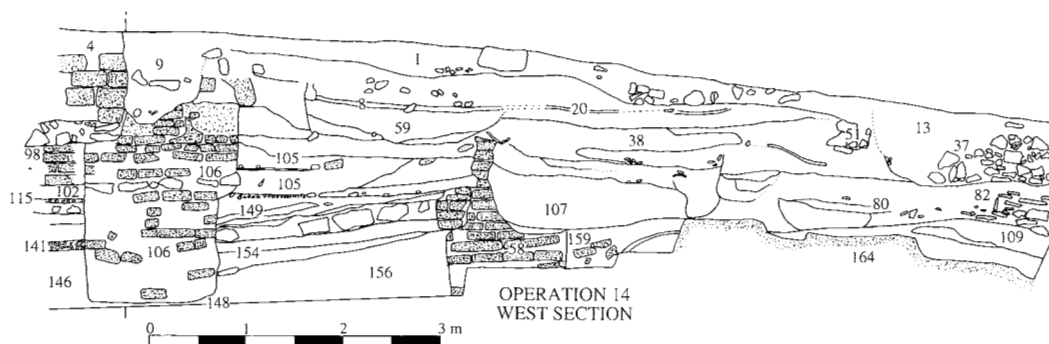


Fig. 2. Op. 14 west section.

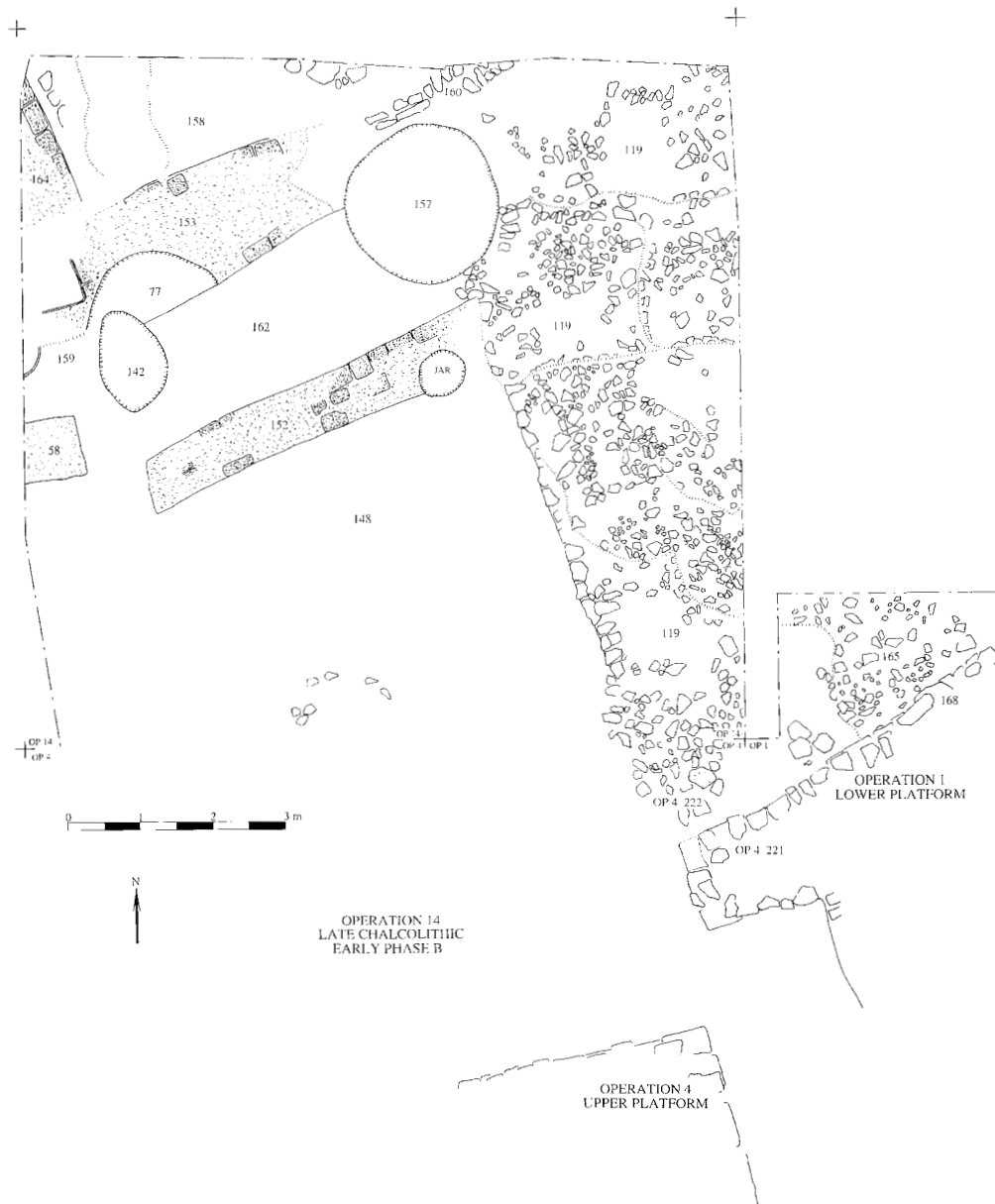


Fig. 3. Op. 14 Late Chalcolithic terrace 119 in relation to the southern (lower) terrace 47 in operations 4/6.

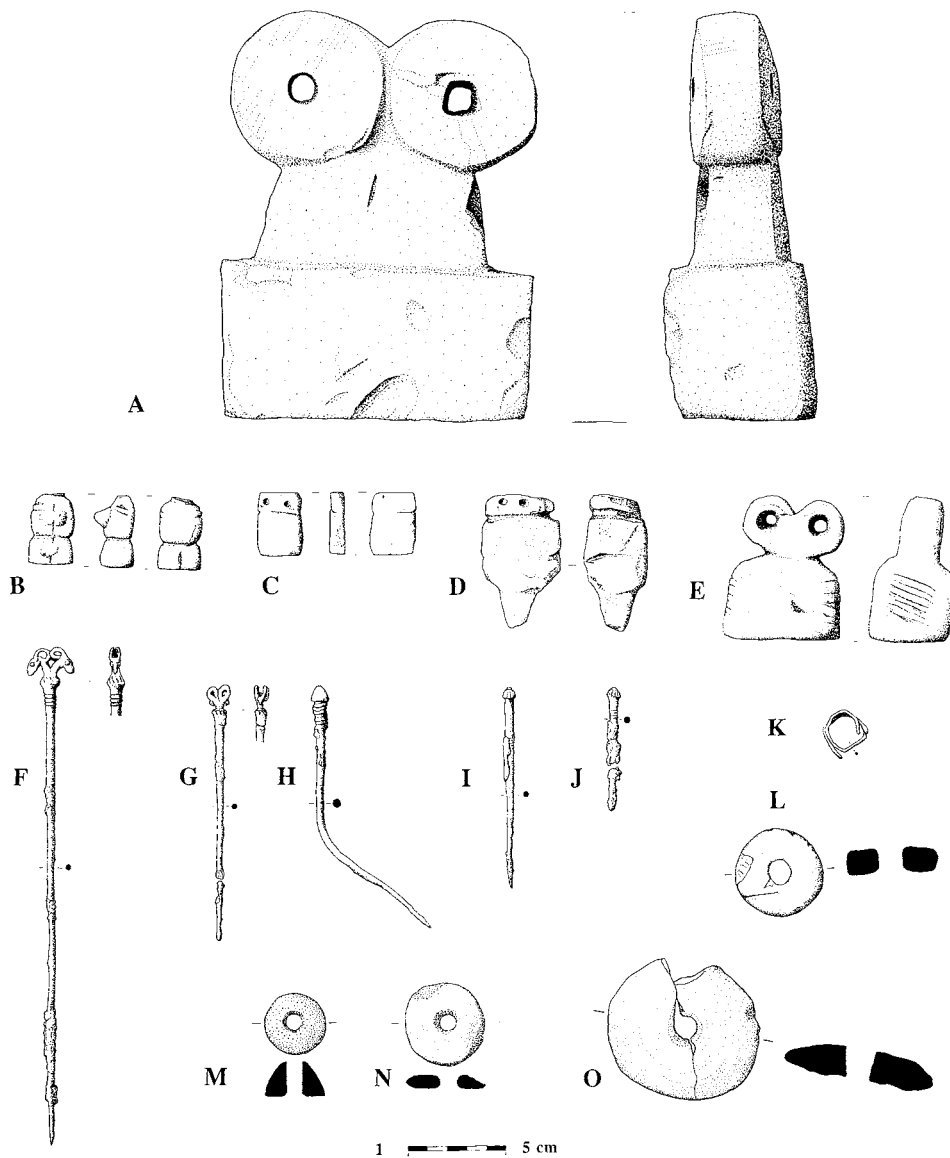


Fig. 4. Late Chalcolithic and EB I artifacts:

- | | | |
|----|--|-------------------------------|
| A. | HN11702 Surface find. Limestone eye idol | |
| B. | HN12202 Op. 14 locus 157 lot 282. | Limestone female figurine. |
| C. | HN11475 Op. 14 locus 146 lot 251 | Limestone eye idol |
| D. | HN11297 Op. 14 locus 56 lot 228 | Limestone eye idol |
| E. | HN12907 Op. 13 locus 65 lot 108 | Limestone eye idol |
| F. | HN12788 Op. 18 locus 5 lot 34 | Copper pin with rams heads |
| G. | HN12294 Op. 18 locus 5 lot 34 | Copper pin with rams heads |
| H. | HN12038 Op. 12 locus 140 lot 295 | Copper pin |
| I. | HN12789 Op. 18 locus 5 lot 34 | Copper pin |
| J. | HN12297 Op. 18 locus 5 lot 34 | Copper pin |
| K. | HN12784 Op. 18 locus 5 lot 34 | Silver wire coil |
| L. | HN664 Op. 1 locus 56 lot 55 | Pierced sherd |
| M. | HN4893 Op. 5 locus 76 lot 141 | Hemispheric spindle whorl |
| N. | HN4905 Op. 4 locus 146 lot 329 | Pierced stone disk |
| O. | HN2337 Op. 6 locus 44 lot 45 | Lenticular pierced stone disk |

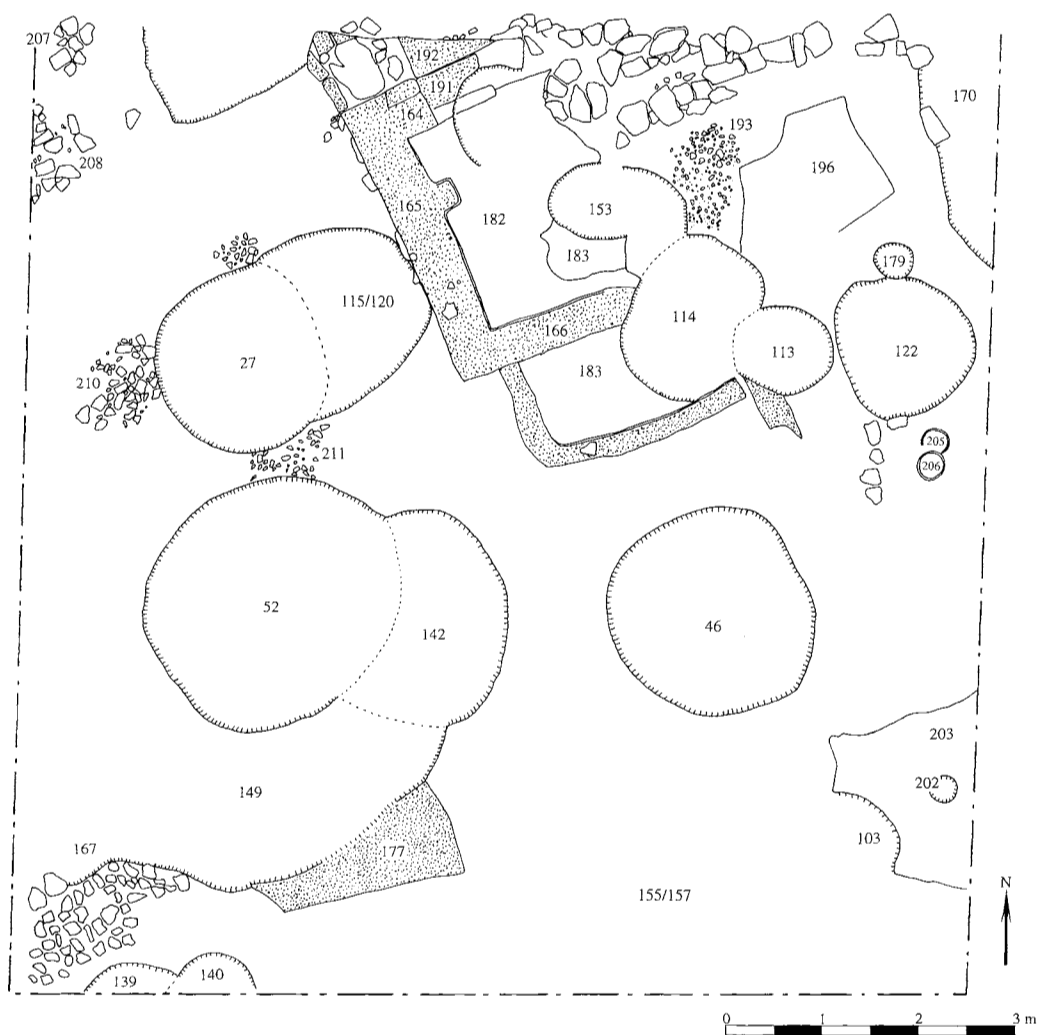


Fig. 5. Op. 15 Late Chalcolithic phase B2 mudbrick architecture.

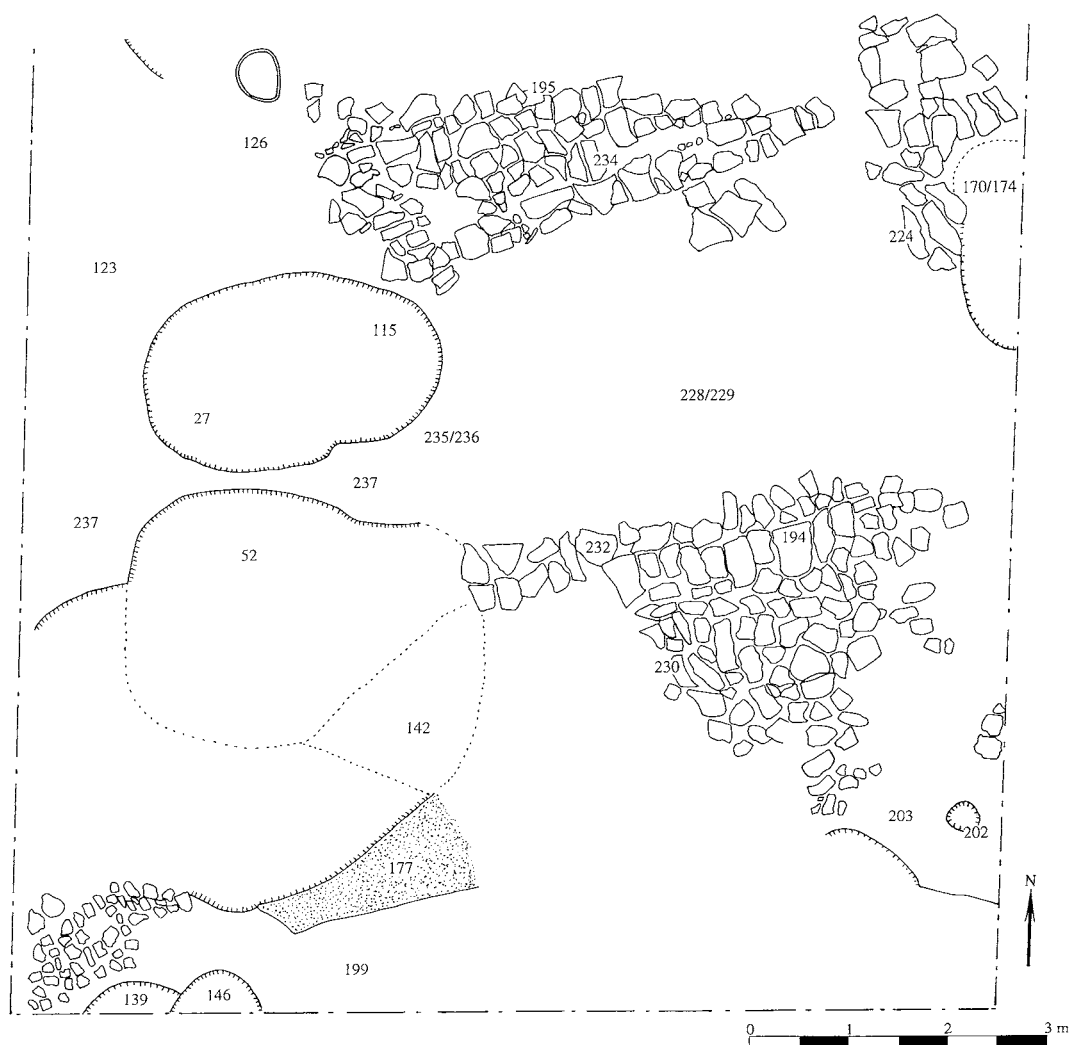


Fig. 6. Op. 15 Late Chalcolithic phase B2 stone architecture.



Fig. 7. HN13445 Op. 15 locus 213 lot 360. Jar sealing with Uruk cylinder seal impression showing an animal procession.

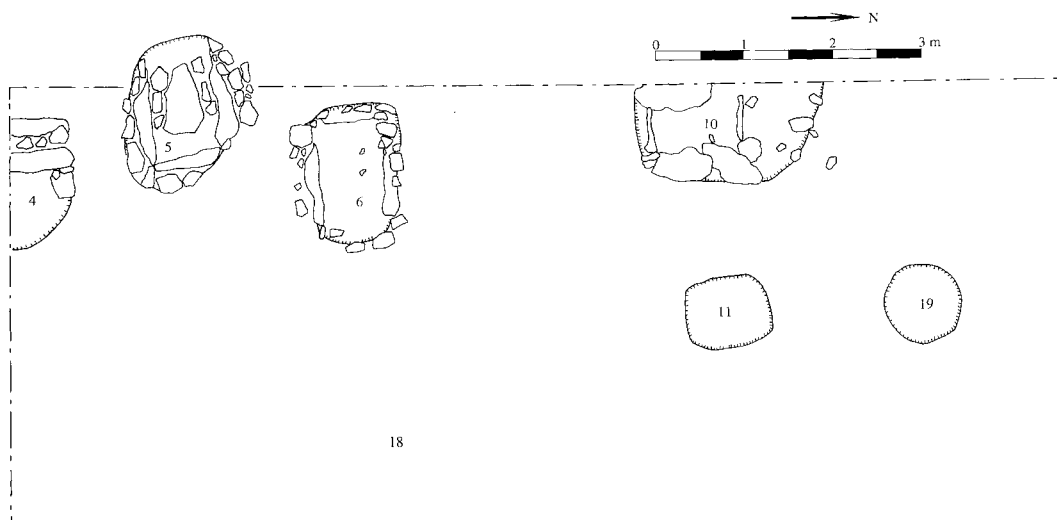


Fig. 8. Op. 18 Early Bronze I cist tombs.



Fig. 9. Op. 18 EBI burial 5 grave goods.

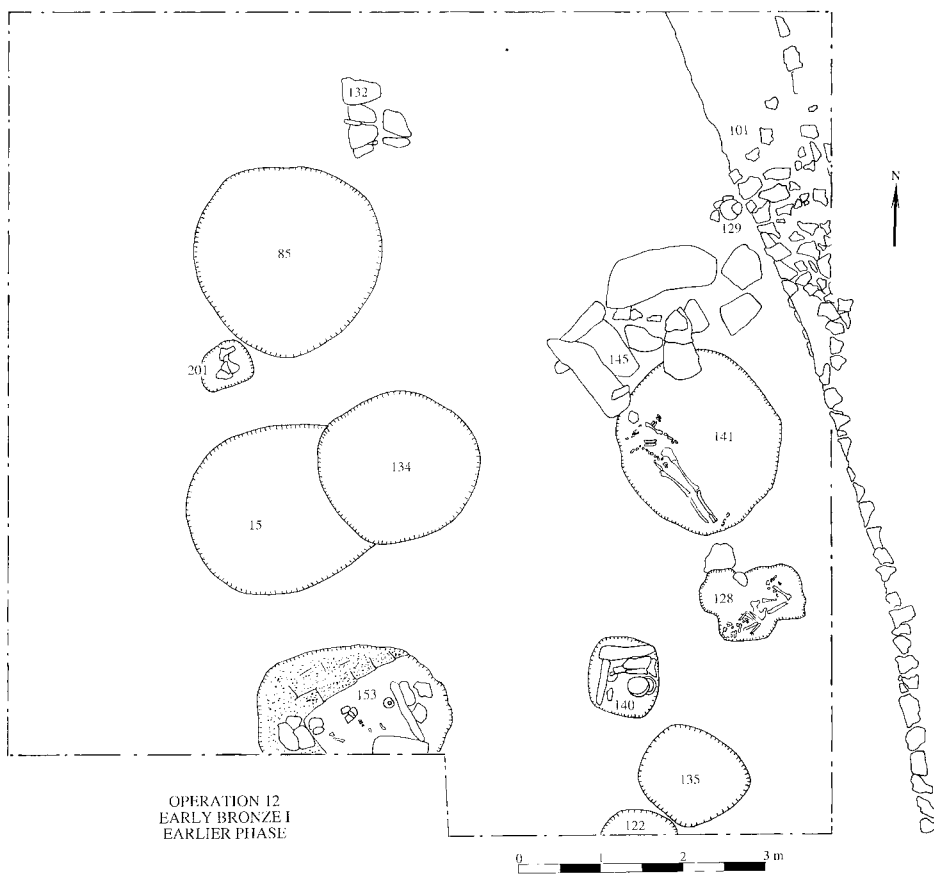


Fig. 10. Op. 12 - Early Bronze I burials.



Fig. 11. Op. 12 – Postholes cut into Late Chalcolithic phase B2 architecture.



Fig. 12. Carved limestone eye idols from Hacinebi.



Fig. 13. Op. 13 – Plan of Hellenistic mudbrick and stone public architecture.

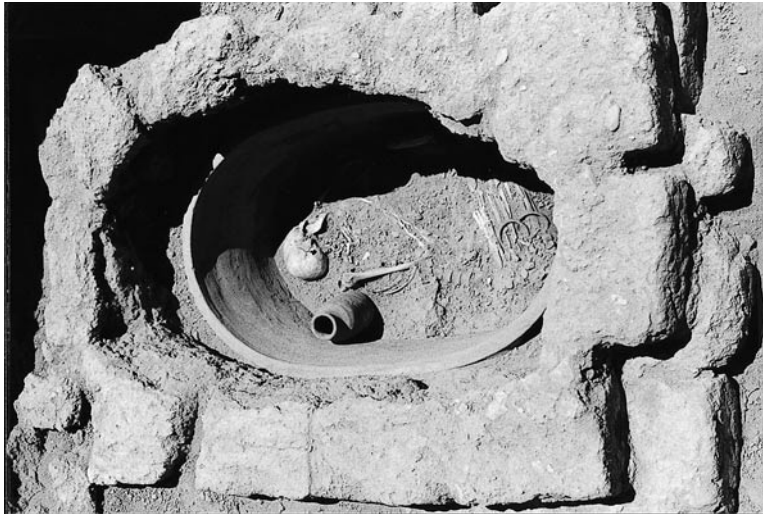


Fig. 14. Op. 13 Achaemenid burial 38 in situ.

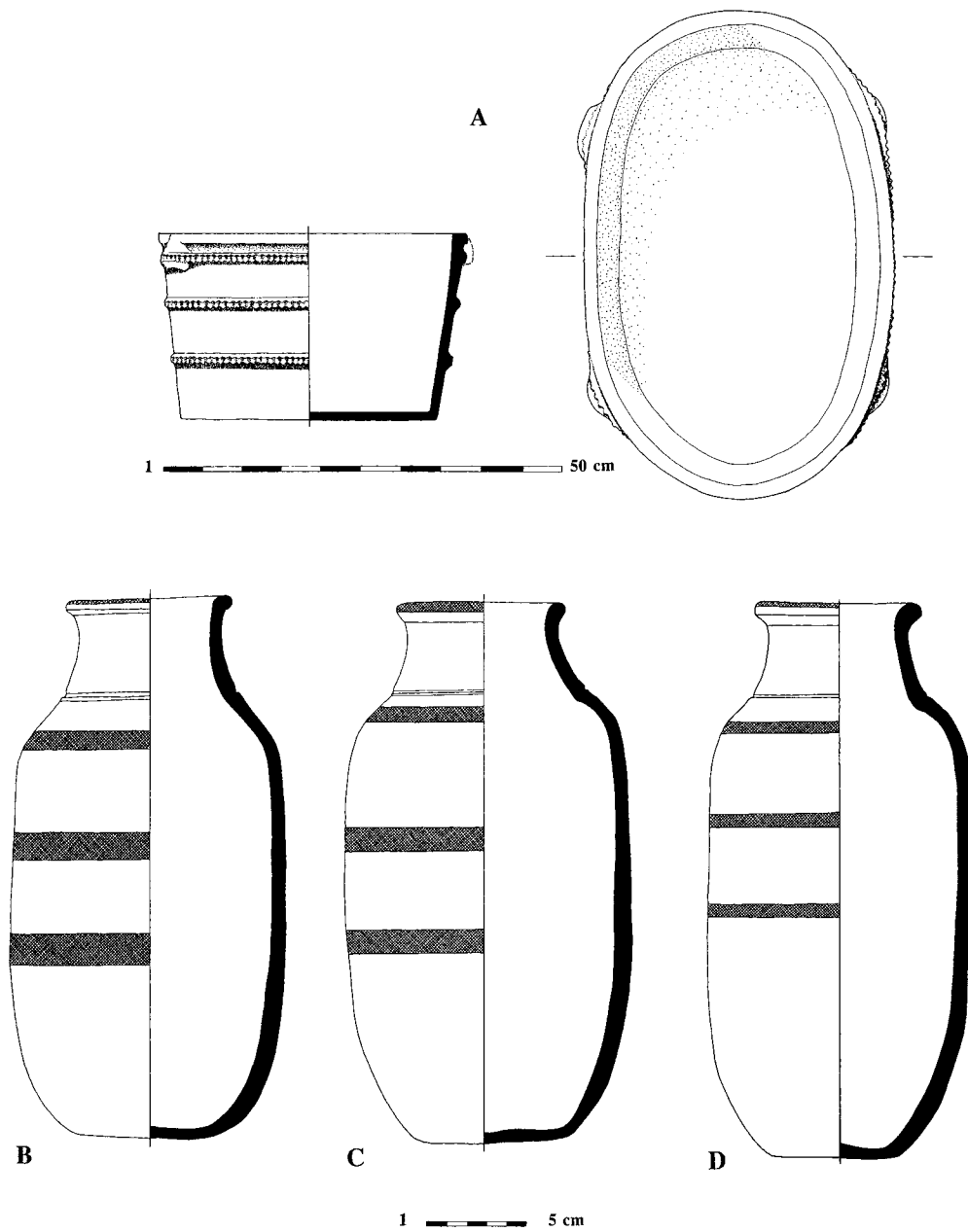


Fig. 15. Op. 13 Achaemenid burial 38 grave goods:

- A. HN12442 Ceramic coffin (scale = 1:5)
- B. HN11690 Cylindrical red striped jar from burial pit.
- C. HN11691 Cylindrical red striped jar from burial pit.
- D. HN12128 Cylindrical red striped jar from inside coffin.

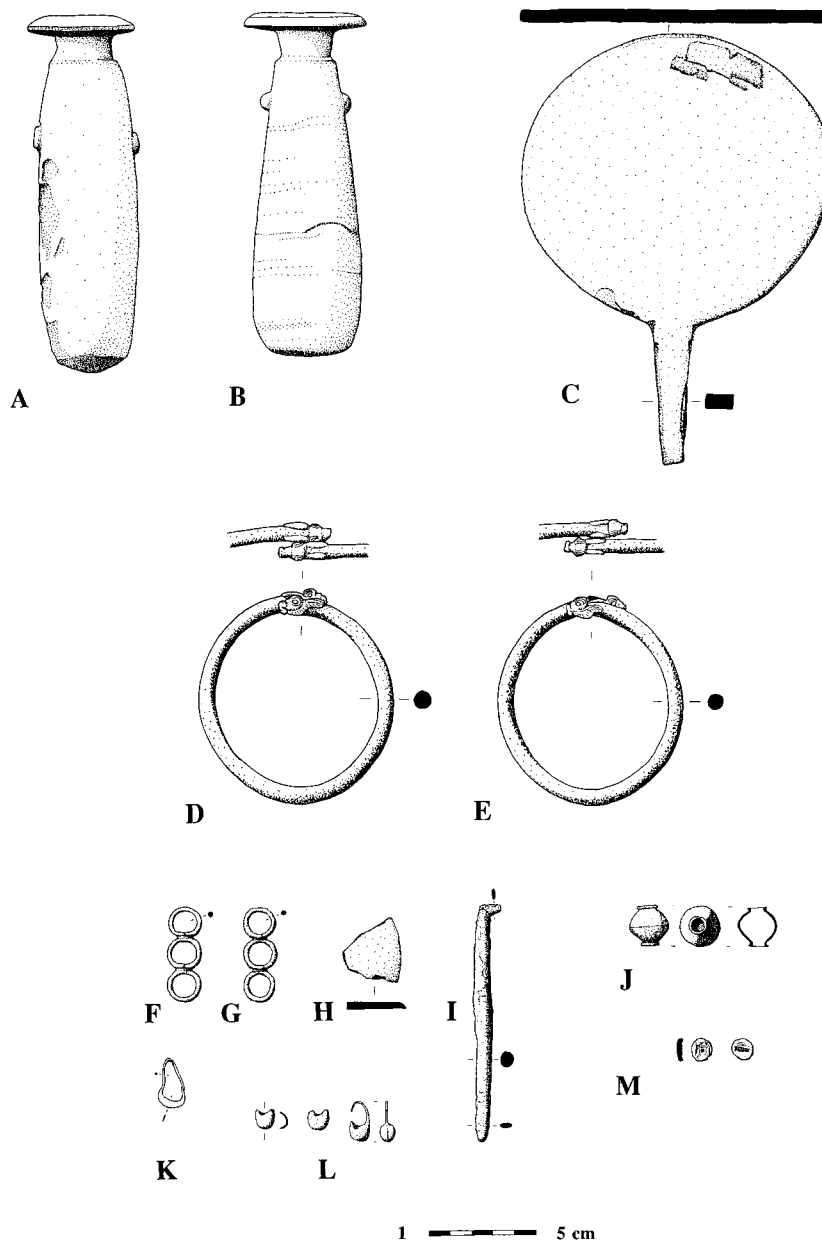


Fig. 16. Op 13 Achaemenid burial 38 grave goods:

A.	HN12122	Alabastron	H.	HN12130	Stone disc section
B.	HN12133	Alabastron	I.	HN12132	Iron pin
C.	HN12140	Bronze mirror. Note mineralized fragment of leather cover.	J.	HN12132.1	Silver hub-shaped bead
D.	HN12123	Silver/bronze alloy anklet	K.	HN12131	Penannular silver earring
E.	HN12124	Silver/bronze alloy anklet	L.	HN12127	Bronze crescent earring fragments
F.	HN12135	Gilded silver triple ring set	M.	HN12125	Bronze stamped coin shaped pendant (one of 15 shown)
G.	HN12136	Gilded silver triple ring set			

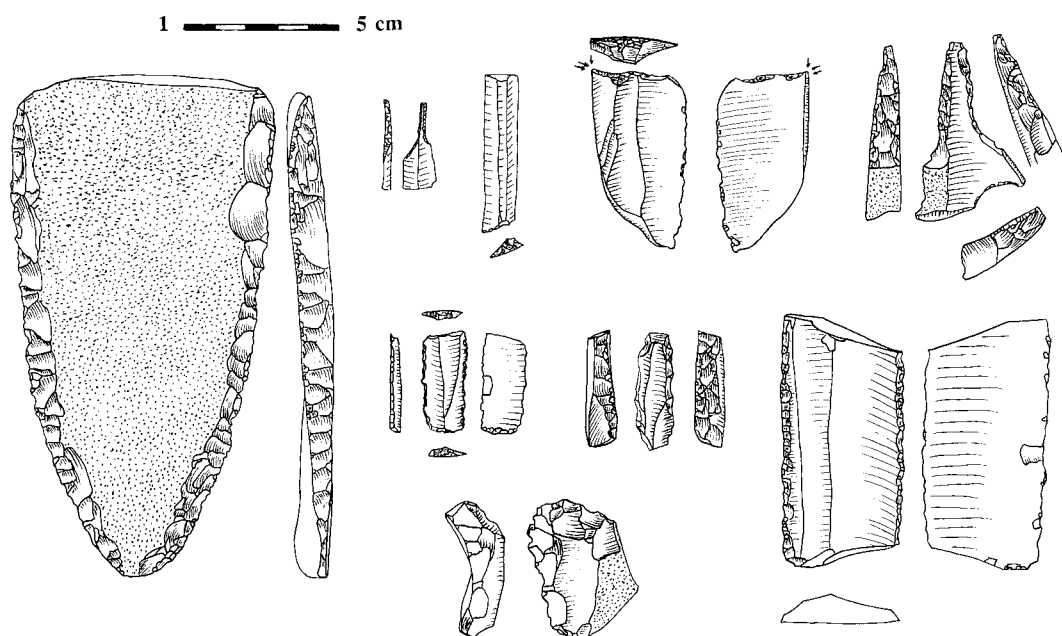


Fig. 17. Late Chalcolithic chipped stone: tabular scraper (left) and selected retouched pieces.

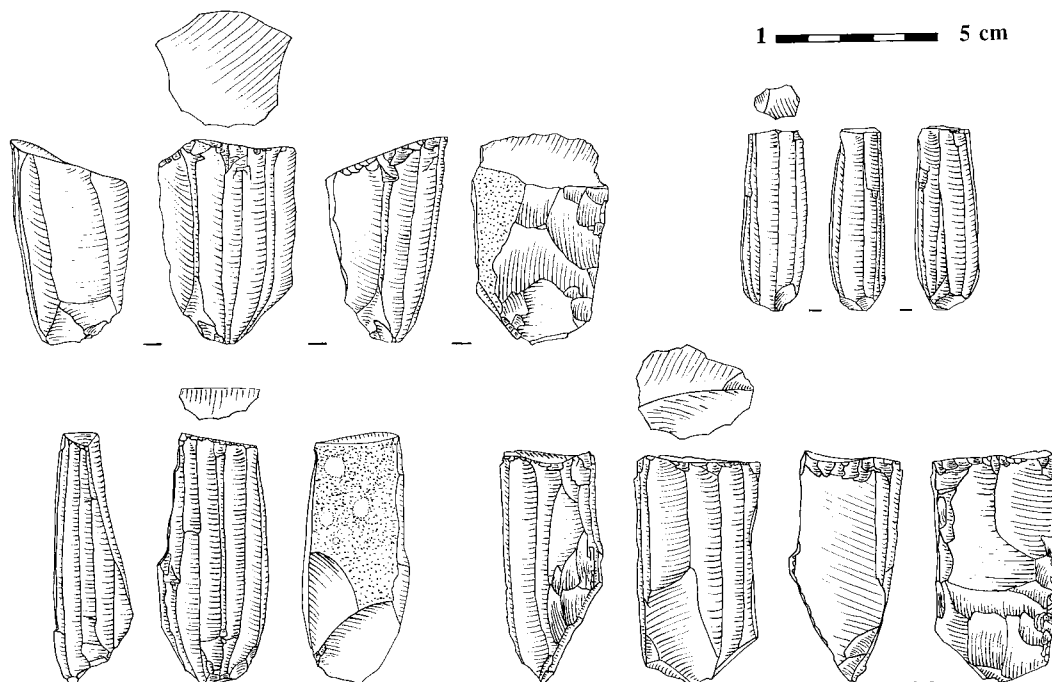


Fig. 18. Late Chalcolithic chipped stone – simple blade cores.

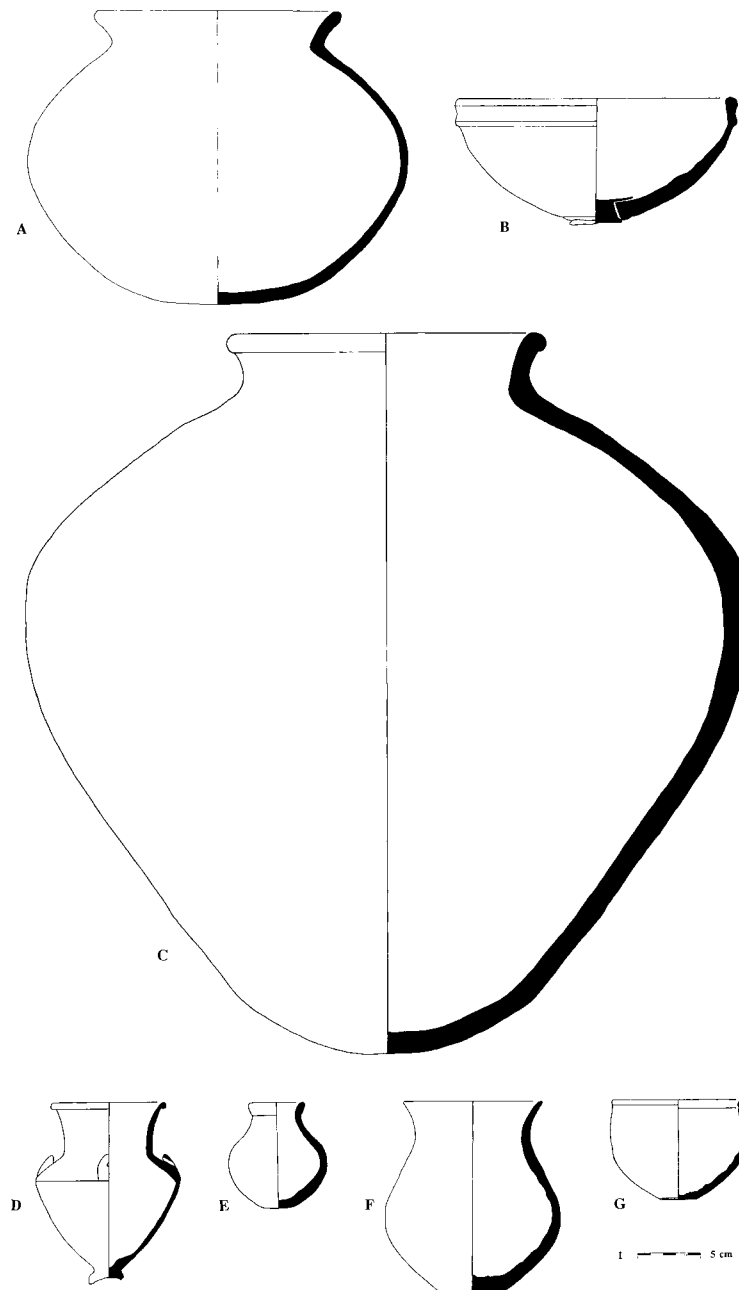


Fig. 19. Early Bronze I ceramics from jar burials and cist tombs in op. 12:

- A. HN11740 Jar
- B. HN11743 Band rim bowl
- C. HN12034 Jar with beaded rim
- D. HN12039 Four-lugged, footed jar
- E. HN13005 Miniature beaded rim globular jar
- F. HN12695 Plain rim globular jar with flat base
- G. HN12694 Beaded rim hemispheric bowl

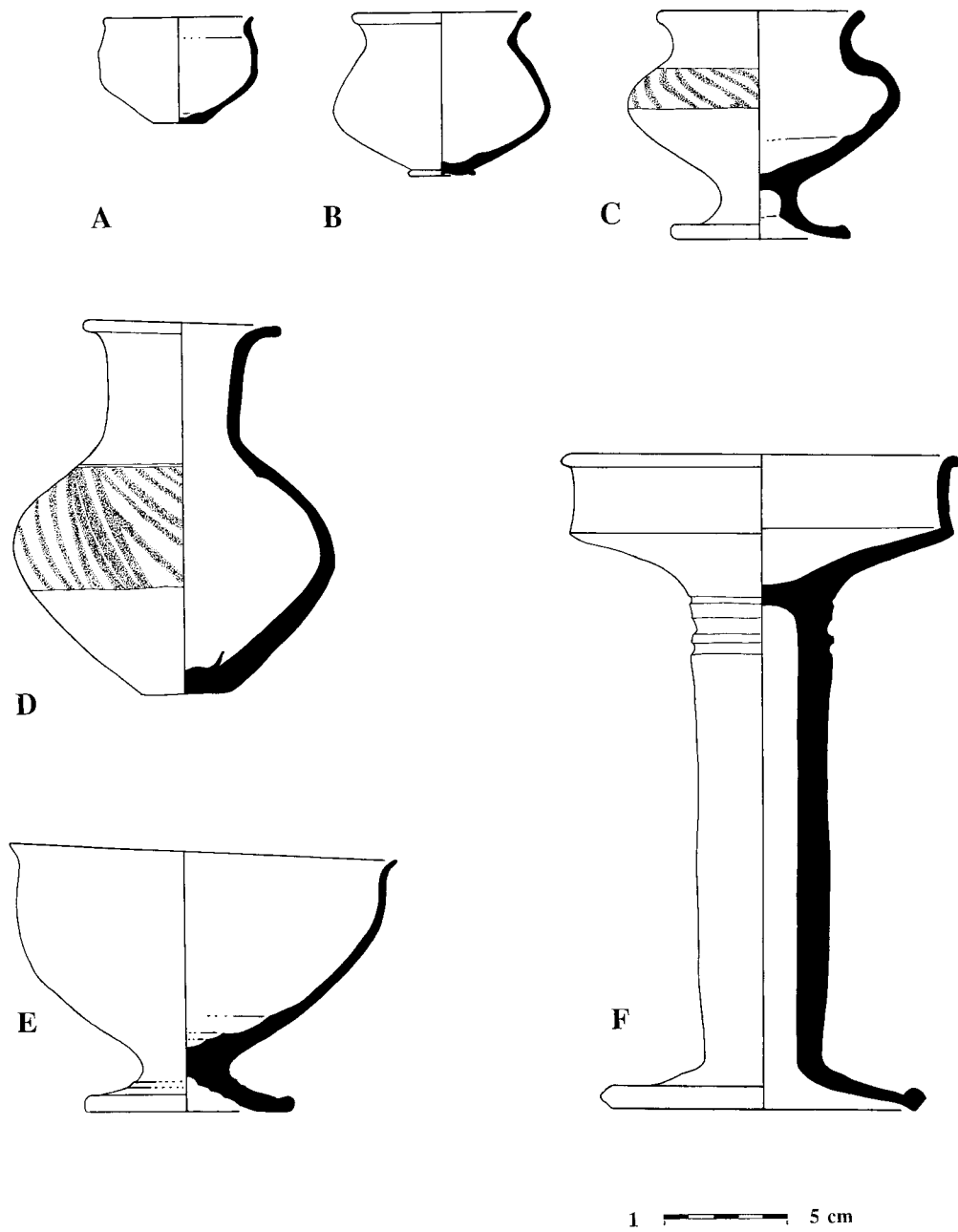


Fig. 20. Early Bronze I ceramics from cist tombs in op. 18:

- A. HN12782 Hemispheric bowl/cup
- B. HN12295 Miniature globular jar
- C. HN12793 Low pedestalled globular jar
- D. HN12797 High necked globular jar
- E. HN12780 Pedestalled hemispheric bowl
- F. HN12798 "Fruitstand" – tall pedestalled goblet

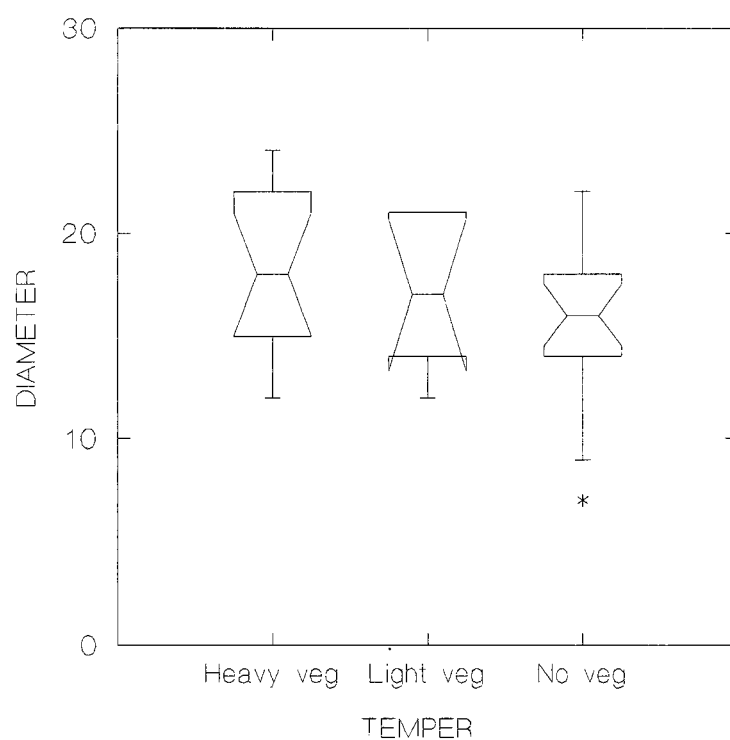


Fig. 21. Hacinebi phase A fineware carinated bowls: Size distribution of rim diameters by temper types.



Fig. 22. Radiographic images (mammograms): Basal views of phase A carinated fineware bowl sherds. Note: carination is in the upper portion of each image.

- A. HN6558:3
- B. HN6806:2
- C. HN6806:5
- D. HN6562:4



Fig. 23. A-D: Radiographic images (mammograms): View of phase A carinated bowls and vessels walls of fineware jars: area between carination and rim:

- A. HN6086:2 (bowl)
- B. HN6806:5 (bowl)
- C. HN6024:10 (jar)
- D. HN6564 (jar)

SPINDLE WHORL WEIGHTS

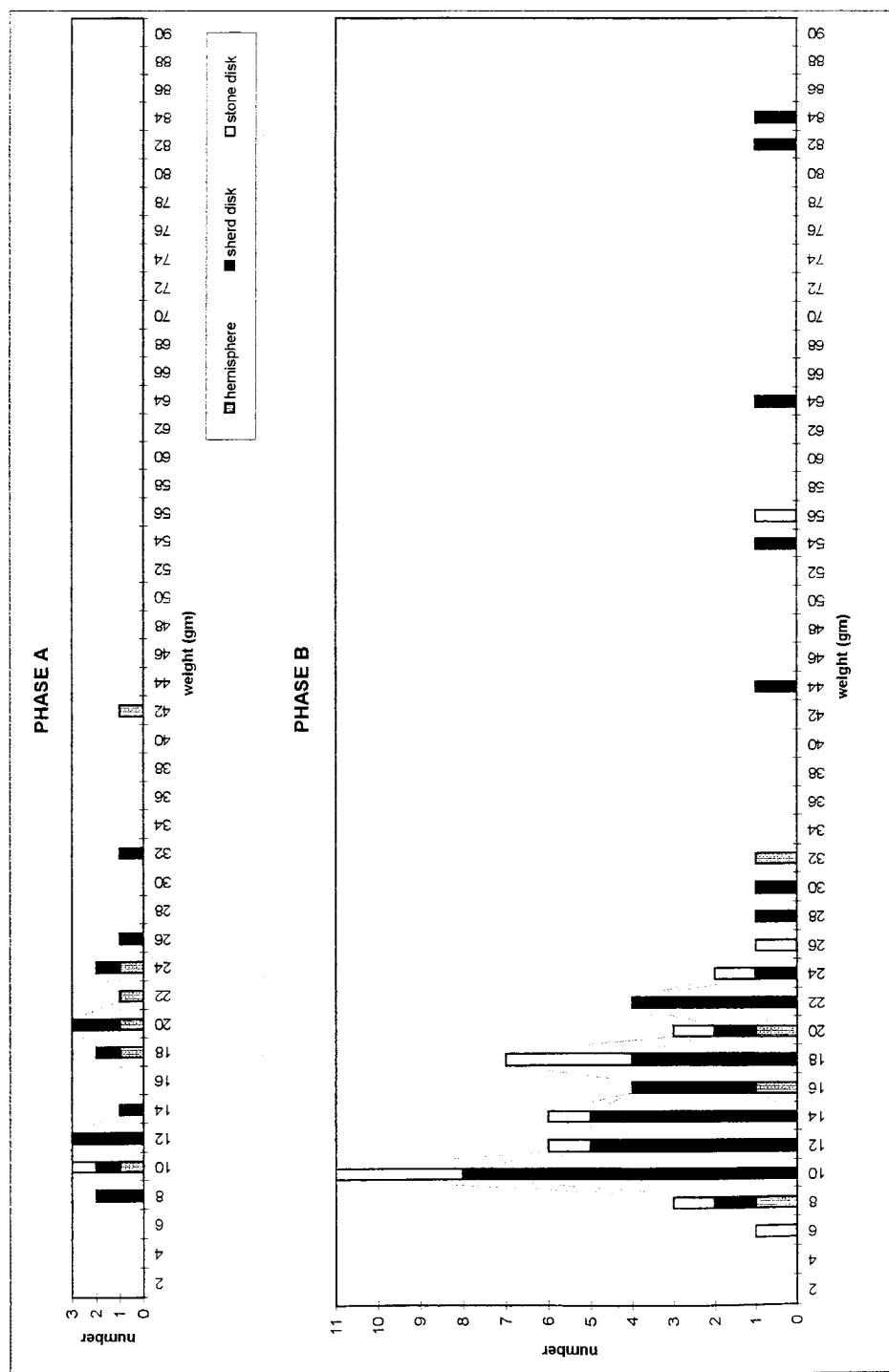


Fig. 24. Hacinebi spindle whorl weights: phase A (top) and B (bottom).

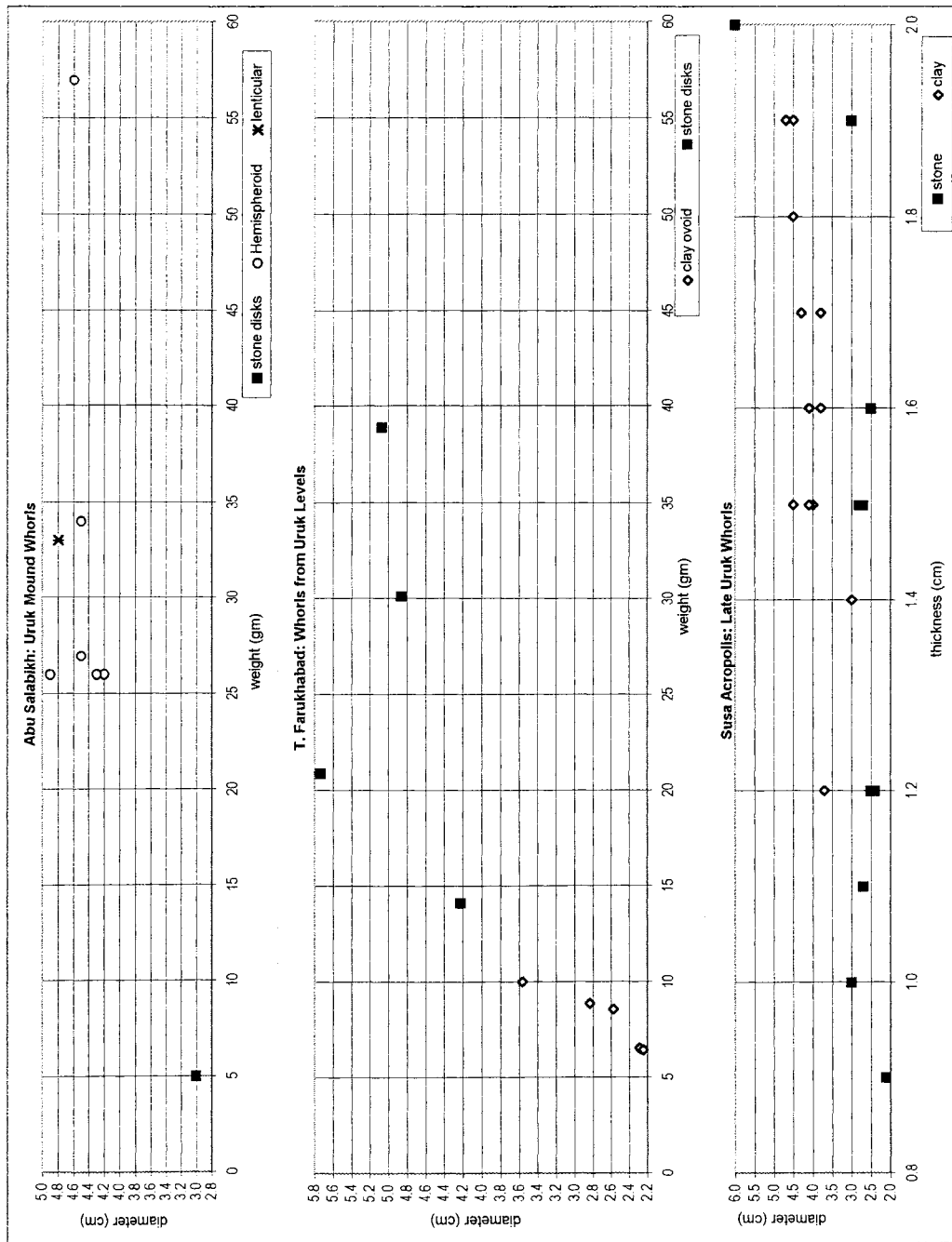


Fig. 25. Uruk spindle whorl forms, diameters, and weights from Abu Salabikh (top), Farukhabad (center), and Susa (bottom).

VAN/ZERNAKİ TEPE: On the Urartian Grid Plan once again

Veli Sevin

The name of Zernaki Tepe has been known since the time of Lynch's (1901: 28) travel at the end of the nineteenth century and its later rediscovery by C.A. Burney in 1956 (Burney 1957; Burney, Lawson 1960). Zernaki Tepe is a rocky limestone hill rising between 60 m (1830 m.) and 130 m (1889 m.) above the fertile plain around the city of Erciş, not far from the northern shore of Lake Van (fig. 1). Upon this hill are to be found some remains of a fairly large town built on the Hippodamic principle, which is generally accepted as being both Urartian in origin, and one of the earliest examples of grid planning (Lampl 1968:113; Nylander 1965-66; Tarhan, Sevin 1976/77^a; 1976/77^b; Kleiss, Hauptmann 1976: Nr. 12; Kleiss 1976; 1983; Oganessian 1983-84 (fig.2). This position, however, becomes difficult to maintain in the light of the new evidence obtained from a survey by the present writer in the summer of 1996.

The ruins occupy an area of about 20 hectares spread over the two higher folds of the hill. The citadel stands on the highest northwestern hill, with the lower city lying on both south-east and north-west sides of it. Both on the citadel and in the lower city the streets have been laid out on a regular grid plan.

The plan of the lower town, to the south-east, shows a pattern of intersecting streets each 5 m. in width, except for the two main streets which cross in the centre of the town and which have a width of 7 m. There is nothing to be said about the blocks (*insulae*) lying between these streets beyond the thorough description given by Burney and Lawson. It is clear that each identical block of about 35 m. square accommodates four housing units. The walls are completely constructed with large stones, particularly at the corners, and along either face, with rubble in the middle. There is no trace of a mudbrick superstructure on the stone foundations.

On the citadel, while the same careful planning is to be seen, it is clearly of a different order¹. On either side of a 9.50 m. wide street, which runs in a north-west and south-east direction, are to be found two *insulae* which we examined carefully. The southernmost one measures 34 x 42 m. and the average thickness of the walls is 1.50 m. Along the full length of the long eastern wall there is a row of rooms (9.00 x 3.50 m., 4.60 x 3.50 m.). The northern block measures 25.60 x 28.00 m. and the thickness of the walls is 0.85 m. There is a row of three adjacent rooms along the long eastern wall. From south to north the rooms measure 8.40 x 6.30 m., 8.00 x 6.30 m. and 9.20 x 6.30 m. The northern wall of this block is completely in ruins (fig. 3). It appears that the arrangement on the citadel is different from that in the south-eastern grid town where identical blocks each carried four houses. This difference can also be seen in the use of bossed (rusticated) black basalt blocks in some of the walls.

¹ Nylander (1965-66: 146) states that this section has the same order except with a street width of 10 m.

The differences in layout, the wider streets and the ashlar blocks of basalt suggest that this section received more consideration and was perhaps of greater importance than the lower town. A carved capital or plaster piece made of whitish limestone, which is found in the area, is another indication of its superior importance (fig. 4).

Remains situated on the southern tip of the citadel, and previously defined as an Urartian temple, have recently been bulldozed to reveal sections of an important building within the hillside (Nylander 1965-66) (fig. 1). Because of the resulting destruction nothing can be said about its plan. The front of the building seems to have rather well-cut ashlar blocks with drafted edges. The inner walls (1.20 m. in thickness) are entirely made of mudbrick bonded with clay and covered by a gypsum plaster. The total height of the inner walls is about 2.50 m. The most interesting aspect of this building is the presence of pieces of moulded stucco corning, which is apparently attached to the mudbrick walls by means of holes in its rear surface (fig. 5-6). Some pieces are painted black and red.

At the southern edge of the structure can be seen traces of what appears to be an entrance. One is struck by the number of porous basalt blocks in the vicinity. These blocks have outer faces which are slightly bossed, and clamp into each other by means of dove-tailing (fig. 7).

It is not clear whether or not the town has a fortification wall. But there is no obvious trace of it². If such a wall existed then it must have traced around the low terrace on the north-west point at a fairly low level in order to include it.

The pottery collected throughout the whole site numbered no more than 13 pieces (fig. 8). These mainly consisted of coarse ware unsuitable for diagnostic purposes. A bowl sherd with a red slipped inner surface and a slightly hollow base was clearly Urartian³ or earlier (fig. 8/4); this type of pottery can be found as far back as the Early Iron Age. Another bowl fragment having a flat rim and burnished on both inner and outer surfaces recalls examples from the Late Iron Age period (fig. 8/2). Two more fragments of bowls could not be clearly dated (fig. 8/1,3). On the western edge of the citadel and particularly around the destroyed building various pieces of large storage vessels were also found, but they were coarse, hand-made ware unsuitable for diagnostic purposes⁴. That so few sherds are to be found despite ploughing of the land and the bulldozing of the so-called "Urartian temple" suggests that the site was either never inhabited or was abandoned before its completion (Burney 1957; Burney, Lawson 1960; Lampl 1968; Nylander 1965-66). The lack of any traces of mudbrick superstructure upon the stone foundations, apart from that in the large building, decorated with stucco on the citadel, would also support this view.

As noted above, up to now Zernaki Tepe has generally been assumed to be an example of Urartian city planning. C.A. Burney⁵ was inclined to date the site to the Urartian period on the basis of two pottery sherds and on the stone workmanship resembling that of the walls of

² Whilst Nylander speaks of the existence of a wall with a mudbrick superstructure, we could find no trace of it.

³ The existence of a few pieces of Urartian type pottery at Zernaki Tepe has been mentioned previously: Burney, Lawson 1960; Nylander 1965-66; Kleiss 1983.

⁴ Nylander (1965-66: 146 f.) found significant amount of pieces of coarse *pithoi* on the S-W slope.

⁵ 1957: 49 f.; Burney, Lawson (1960: 186) argued for the Urartian character of the few surface finds of pottery and used these as his main criterion for datation.

Upper Anzaf Kale known to have been in use from the time of Minua to at least that of Argishti II. However, it is possible to make a misleading judgement on the basis of so few surface finds. The few pieces could even indicate a pre-Urartian settlement. As to the stonework, we can comfortably say that Zernaki Tepe does not show typical Urartian features. The existence of simple walls constructed with rough stones on either face and infilled with rubble, clearly does not give a criterion for dating the lower city. Furthermore, the use of dove-tailed clamps in the more carefully worked drafted basalt blocks of the citadel is a particularity not found in Urartian workmanship (Nylander 1970).

At this point it is necessary to say something about the two-roomed houses, each fronted by a courtyard which have generally been accepted as having Urartian characteristics. At Zernaki Tepe there are hundreds of such houses all identical in plan. We ourselves have previously proposed that houses of this style were widespread in the Urartian state and that their plan had its source in the second millennium Hittite world (Tarhan-Sevin 1976-77^b). The writer now feels doubtful, however, about the dating of the examples given from Eski Norgüh, Ağaçlık (Avzini), Giyimli (Hirkanis) and Gövelek (Ermanis). For example, in the course of a survey carried out by ourselves at Eski Norgüh in 1995, collected surface finds seemed to suggest that this site had been inhabited from the Early Transcaucasian and Middle Bronze Age up to the Late Iron Age, but no Urartian sherds were found. Likewise, the structure resembling a small castle at Ağaçlık is far from having a clearly Urartian character. At the base of this structure, which has thus far provided no surface material, is a stone tomb which from the point of view of its false-arch construction is more akin to Early Iron Age pre-Urartian examples (Sevin 1987). There is, likewise, no supportive evidence from the free standing structures found near Giyimli and Ermanis, because it is not possible to date any of these stone structures purely on their building techniques.

It can be seen from the above that there is basically no material evidence to date Zernaki Tepe to the Urartian period. Neither is there strong support for the grid system in Urartu, nor can the existence of two inscriptions dating to the reign of the Urartian king Sarduri II at Karataş at the eastern limit of the Erciş plain be used as evidence (Melikishvili 1960, Nrs 167-168). To date, using the hypothesis that Zernaki Tepe is Urartian as a starting point, it has been supposed that a similar situation exists at Upper Anzaf near Van. It is true that to the east of the fortress there exists a walled lower city, having stone walls of 2.00 m. thickness, and at least two gates, one to the east and one to the west. Nevertheless, thanks to the presence of the modern village which overlays it, it is not possible to obtain any information about the plan of this Urartian town because the only piece of architecture that can be seen at the moment is a piece of jointed wall set at right angles to the eastern wall of the lower city (Belli 1995)⁶. It remains only to say that the Urartian grid-planned cities are nothing more than a hypothesis based on no solid evidence⁷.

On the other hand, the stone-working techniques of the drafted basalt blocks held in place by dove-tailed clamps, the carved architectural limestone piece, and the stucco fragments

⁶ I am indebted to Oktay Belli for his verbal admittance that despite all his investigations and small scale clearing work at the lower city of Lower Anzaf Kale, he has found no trace of anything suggesting the existence of a grid plan.

⁷ From the point of view of its plan, Dutschgagi, 47 km. S-W of Maku, which is founded on a 1 km. long limestone plateau, resembles Zernaki Tepe. Apart from one piece of red polished sherd, this city also has no clear Urartian characteristics: Kleiss 1968: 13 ff., fig. 9; see also Kleiss 1983: 290, fig. 6.

all point to a date much later than Urartian.

In particular, it is evident that stucco decoration is not found earlier than the Parthian and Sassanian periods in the East (Baltrusaitis 1938; Pope 1965; Ghirshman 1978). On the other hand, it is known that the Sassanian king Shapur I (241-272 AD) built towns on Hippodamic principles, or in the style of Roman military garrison towns (Reuther 1938). Bishapur is a good example of such a town and in its general aspect resembles Zernaki Tepe (Ghirshman 1962; 1978). It is known that this king, having won a major victory against the Roman emperor Valerianus near Edessa in 260 AD, exiled the 70,000 Roman legionaires he had captured to Iran, and settled them in newly made, planned cities.

In conclusion it is not at all impossible that Zernaki Tepe is one of the towns founded by the Sassanian king Shapur I, but abandoned for some reason before it was finished. Furthermore, the existence of grid-planned Urartian towns is debatable.

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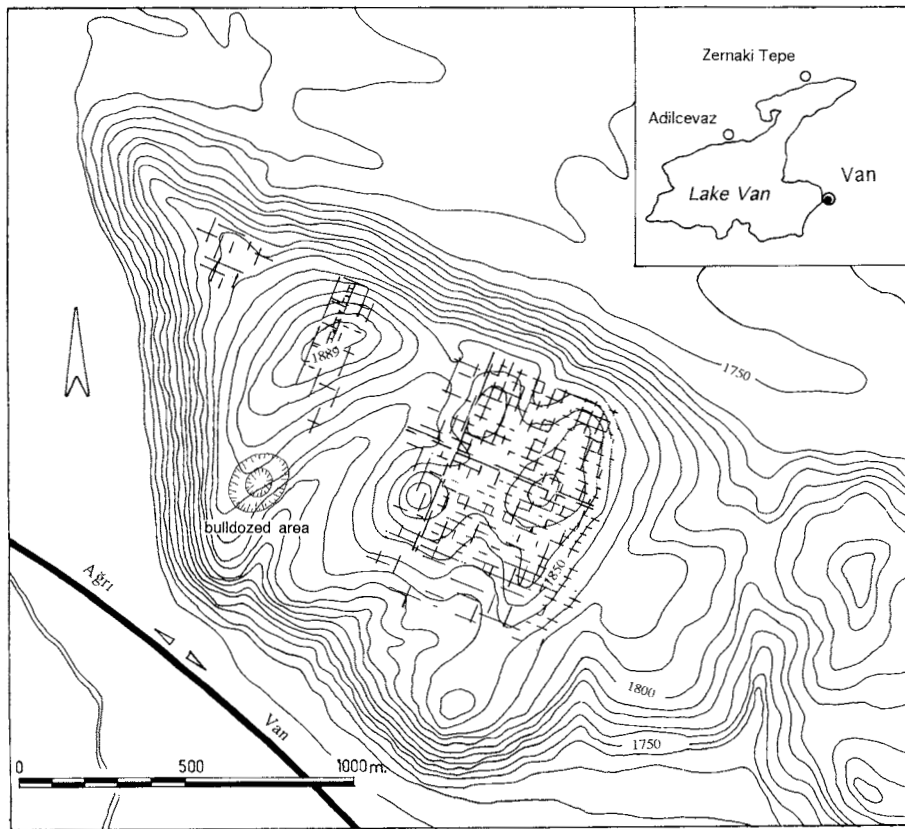


Fig. 1. Contour map of Zernaki Tepe.

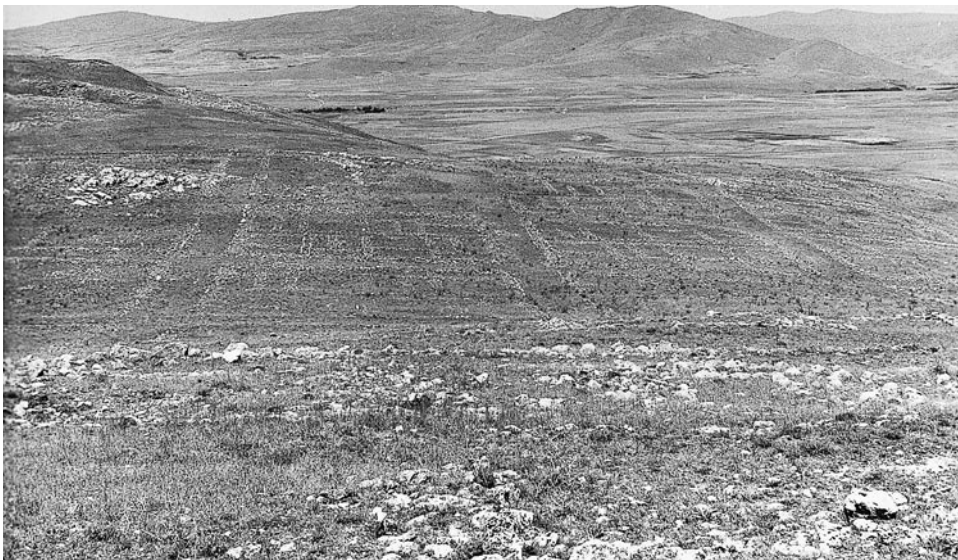


Fig. 2. South-east grid town.

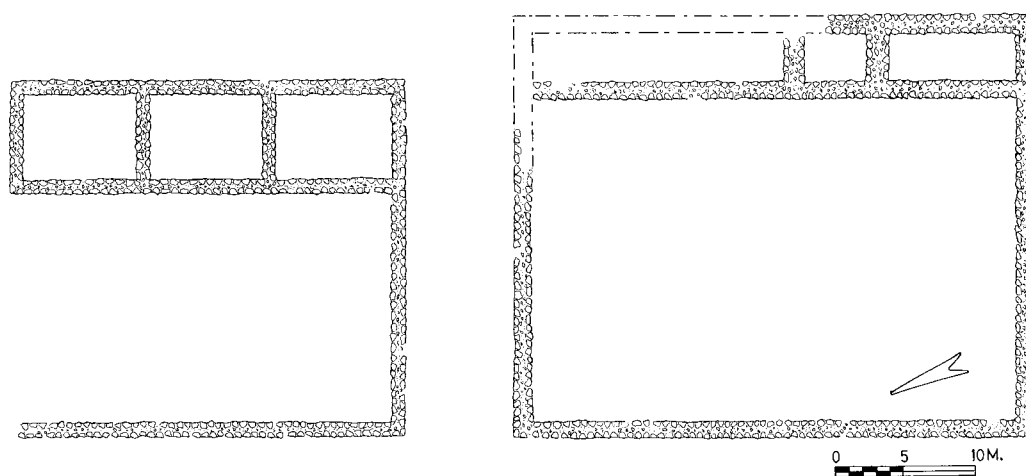


Fig. 3. The plan of two insulae from citadel.



Fig. 4. Fragment of a limestone capital.



Fig. 5. Stucco fragments.

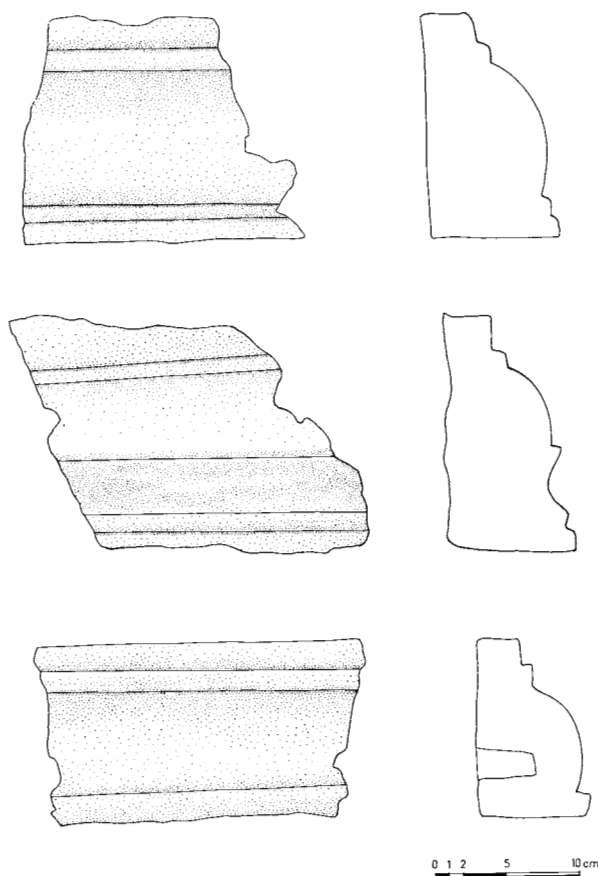


Fig. 6. Sections of the stucco fragments.



Fig. 7. Two basalt blocks with clamps.

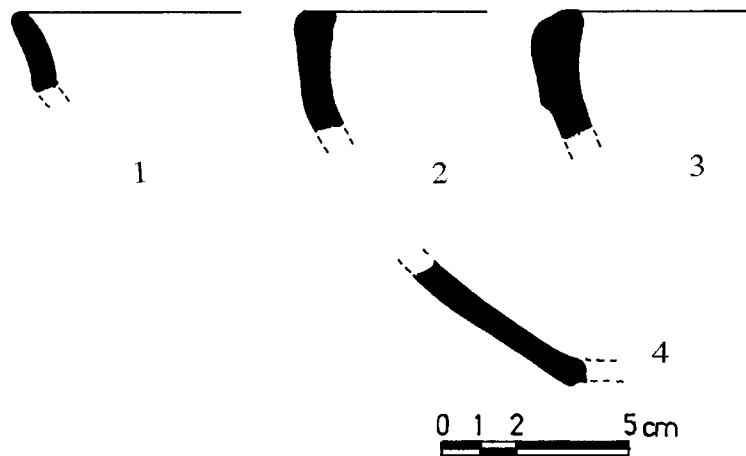


Fig. 8. Pottery from Zernaki Tepe.

1. Wheel-made, pale cream (5YR 7/4 ware with red (IOR 4/6) slip, medium grit tempered, poor fired, burnished.
2. Wheel-made, brown (5YR 5/4) ware, same colour slip, medium grit tempered, poor fired, burnished.
3. Wheel-made, reddish brown (2.5YR 5/4) ware, same colour slip, medium grit tempered, poor fired, burnished.
4. Wheel-made, brown (5YR 7/4) ware with red (IOR 4/8), slip, medium grit tempered, medium fired, burnished.

EXCAVATIONS AT SOS HÖYÜK, 1996. Third Preliminary Report

Antonio Sagona, Mustafa Erkmen, Claudia Sagona and Sarah Howells

The third season of the University of Melbourne and Erzurum Museum excavations at Sos Höyük, which lies between Erzurum and Pasinler, continued this year between 2 June and 14 July.¹ The setting of the site and broad objectives of the project were reported in our earlier papers.² This year our primary aim was to link the various operations with a view to determining the building sequences from the uppermost levels to the Early Bronze Age deposits in the lower northeastern sector. In order to articulate the phases of occupation throughout the mound, a new area, M15d, was examined, which provided evidence of activity on the crucial period between the end of the Early Trans-Caucasian culture and the commencement of the Iron Age. On the summit, work concentrated on exposing the remaining sections of the Medieval settlement, and determining the relationship between the large burnt building of Post-Achaemenid (previously termed Hellenistic) date and the preceding late Iron Age period.

Accompanying this broad objective was the need to increase the number of radiocarbon readings, particularly critical for northeastern Anatolia. The main basis for developing a site chronology this season is a group of 12 radiocarbon determinations which were obtained from charcoal and bone samples. The dates from Sos Höyük, totalling 27 so far, are listed in Table 1 as uncalibrated before present (BP). Calibrated dates (BC) are portrayed in Fig.16 as bar diagrams and calculated to the first and second standard deviations, which means there is a 68% (first) and 95% (second) probability that they fall within the limits given. These dates have been calibrated using the CALIB programme of Stuiver and Reimer, and graphed as bars using the complementary

¹ The Sos Höyük 1996 excavation team comprised nineteen staff: Antonio Sagona (University of Melbourne), Mustafa Erkmen (Erzurum Museum), Claudia Sagona (University of Melbourne), Gülper Algur (Erzurum Museum), Andrew Anastasios, Bronwyn Douglas, Murray Clayton, Peter Davies, Ilona Dömer, Richard Heap, Liza Hopkins, Sarah Howells, Tamaz Kiguradze, Mıhrıcan Kılıç, Matasha McConchie, Jenny Newton, Anna Parker, Ian Thomas, Meaghan Wilson. Ian McPhee and Elizabeth Pemberton were in Erzurum for two weeks to study the Hellenistic material from the Bayburt survey held at Atatürk Museum. We wish to record our appreciation to the Anıtlar ve Müzeler Genel Müdürlüğü for granting us permission to undertake the investigations, and the valuable assistance received from the Vali of Erzurum, Ahmet Kayhan, and the Director of Culture. We are also very grateful to the generosity of spirit extended by the staff at Atatürk University, in particular, Prof Dr Enver Konukçu, Dean of the Faculty of Science and Arts, Prof Dr Hamza Gundoglu, Head of the Department of Archaeology and Art History, and Dr Muzaffer Barın, Department of English. The drawings of the finds were produced by several members of the team including M. Wilson, and A. Parker, and inked by A. Sagona and C. Sagona; trench plans were plotted by various trench supervisors and inked by A. Sagona. The project was funded by the Australian Research Council.

² Sagona, Sagona and Özkorucuklu 1995; Sagona, Erkmen, Sagona and Thomas 1996.

software programme devised by the Quaternary Isotope Laboratory, University of Washington³.

EXCAVATIONS

Medieval

On the basis of last season's results, excavations were extended along the western edge of the summit. Among the features recorded were a cobbled entrance into the Medieval settlement, narrow paved areas and a series of connecting stone-based walls generally reduced to one or two courses. A prominent feature of the excavations, in the northwestern corner, was a series of pits that interrupted the plan of the complex, in some cases cutting through into the Iron Age levels. The pits were straight sided with a flat base in profile, and their infilling comprised pottery fragments and bones within a matrix of crumbly grey soil. The Medieval assemblage is most easily recognized by its pottery, in particular its cooking wares. Characteristic forms include round bodied jars with a flared rim, often bearing traces of smoke blackening on their untreated surface. Some examples are decorated above the shoulder with shallow incised patterns, comprising mostly wavy and horizontal lines (Fig. 5:2). A spurred handle that links the rim to shoulder on one vessel has a distinctive tooled feature running down its spine (Fig. 5:1). These and other similar forms fit comfortably into the Medieval assemblage outlined in earlier reports⁴.

Post-Achaemenid

Work continued to uncover completely the burnt building assigned to the Hellenistic period in our previous report, but now more appropriately attributed to the Post-Achaemenid in view of the local nature of the finds.⁵ While excavations have left no doubt that this building is an enlargement of an earlier Late Iron Age structure, its entrances having been re-modelled and walls strengthened (Pl. 1), we are still no closer in proposing with any certainty the time difference between the two structures. Although two charcoal samples (Beta-74454; -84367) yielded dates of 2140 ± 60 BP and 2120 ± 60 BP respectively for the destruction of the post-Achaemenid building, an age range which P. Kuniholm and his team will undoubtedly refine through their dendrochronological analyses, at present it has been difficult to obtain suitable carbon samples from deposits that will date precisely the end of the Late Iron Age building. The mud plastered feature found positioned against the east wall of the Post-Achaemenid building last season was dismantled⁶. Its base and sides were built from squarish (45x45x12 cm) and rectangular (45x30x12 cm) bricks placed on a prepared layer of mud, lined with a mud packing and finally coated with hard mud plaster.

³ Stuiver and Reimer 1993; Radiocarbon Calibration Program 1993, Rev. 3.0.3c, Quaternary Isotope Lab, University of Washington. Compiled with Microsoft Fortran 5.0; copyright Microsoft Corporation, 1988. Graphic font distributed by courtesy of and copyrighted by Bitstream, Inc. We would like to thank Peter Brennan for the production of the bar diagrams.

⁴ Sagona, Sagona and Özkorucuklu 1995: Fig. 6:1, 2; Sagona, Erkmen, Sagona and Thomas 1996: Fig 5:1.

⁵ Sagona, Erkmen, Sagona, Thomas 1996:29-30.

⁶ Sagona, Erkmen, Sagona, Thomas 1996: Fig. 1; Pl. V.

Iron Age

At this stage, the major component of the Late Iron Age assemblage derives from the complex mentioned above which has yielded a variety of wares, among them a fragment of a fine thin-walled gadrooned bowl (Fig. 5:4). The two bowls illustrated in Fig 5:5 and 6 are decorated with white paint on a dark surface; one of them, ornamented with vertical rows of chevrons and a hooked design, had been mended. A furrowed bowl (Fig. 5:7), a rare type at Sos, with a horizontal lug handle attached at the rim belongs to a form normally attributed to the Early Iron Age.⁷ Coarse kitchen wares of this period are represented by a rounded pot and a plain lid (Figs 5:3; 7:2).

Early Iron Age deposits were detected in trenches L16 and M15, and correlate well with the sequence observed in the J 14 sounding delineated last season. In trench L16, a thick plaster floor, part of a large room along the eroded eastern edge of the mound, was covered with a layer of burnt fill that has provided a calibrated radiocarbon date range of 1200–855 BC (Beta-95214), which is in statistical agreement with the determination (Beta-7445, 1220–800 B.C.) from a J14b sample collected in 1994 above the plaster floor⁸. Pottery from this level includes carinated bowls (Fig. 5:8) and holemouth jars (Fig. 6:1) which tend to have a black fabric and surfaces that are sometimes well burnished. This comparability of dates and finds suggest that the L16 and J14b plaster surfaces belong to the same Iron Age complex.

The L16 destruction deposit can be traced into the contiguous trench, M16, and then into M15d, where it sealed a substantial pit, showing evidence of intense or prolonged burning (Fig. 1; Pl. 2). The pit measured some 4.5 m across and 90 cm deep, and was dug into a packing of limestone, containing much charcoal, chunks of vitrified limestone, and many distorted and wasted pottery fragments (Fig. 7:1; Pl. 3). Careful scraping and an examination of the trench sections revealed traces of other pits that had been cut into the packing and subsequently sealed (Figs 2, 3). Charcoal samples recovered from the latest pit, in M15d, indicate that it was in use between 1500 and 1135 B.C. (Beta – 95215). All things considered, including the absence of any signs of architecture, it seems reasonable to regard this complex of limestone and pits as an 'industrial area', used either to bake pottery or to burn limestone for the production of plaster.

Below the limestone packing was an almost sterile layer of a greenish brown silt defined at the base by a distinctive chocolate brown deposit (Figs 1, 2; Pl. 7). Preliminary analyses have shown the chocolate brown layer to be highly alkaline, suggesting that it might represent cattle dung clods used to fuel the pit. A large quantity of pottery, mostly overfired and crackled, was found scattered within the pit and over the packing. The repertoire contains many wide mouthed vessels manufactured from a brickly, hard orange clay that is treated all over with a cream, or greenish cream, slip (Figs. 6:2–4; 7:1).

Late and Middle Bronze Ages

Traces of activity belonging to the second millennium B.C. were found in Trenches M15d

⁷ Sevin 1991; Summers 1994; Bartl 1995.

⁸ Sagona, Sagona and Özkorucuklu 1995: 198; Sagona, Erkmén, Sagona, Thomas 1996: 31–32.

and M 16. Although at this stage second millennium occupation has been uncovered over a relatively small area, its presence is unequivocal, represented by a deposit that averages approximately 1.75 m in depth. A marked change in the cultural remains was noted below the Early Iron Age levels in Trench M15d. Part of a circular dwelling, with an estimated original diameter of approximately 5m, occupied half of the trench (Pl. 4). No entrance gap was visible in the wall which was founded on a loosely set single row of stones. The structure had a plaster surface, but no internal features. A hearth flecked with pieces of plaster abutted its wall on the exterior. In the area immediately to the east, the bowl-shaped bases of two plaster lined circular pits were found, one with a diameter of c. 2 m. It will be apparent from Beta-95216, a charcoal sample obtained immediately above the plaster floor of the round house, that the dwelling was founded sometime during the first half of the second millennium B.C. (1890-1540 B.C.). This date is supported by another radiocarbon reading, Beta-95217, recovered from a sample located higher up in the burnt fill within the ⑤ house. Taking into account the calibration range (at the 95% confidence level), these dates point to a gap of several hundred years between what is currently the latest round house phase of the second millennium B.C and the Early Iron Age limestone complex in M15d.

The earlier part of the second millennium is best defined lower down in the adjacent trench, M16, where a cluster of at least eight pits was articulated. They ranged in size from about 2 m to 75 cm in diameter and were preserved to a maximum depth of 45 cm. The profile of the pits varied from those with shallow shelving sides and round bottoms to a pit type defined by its steeply converging sides and flat or slightly dished base. Some pits were filled with stone rubble and loose brown soil, while others had their bases lined with a thin layer of plaster, suggesting that they were probably used for food storage. No evidence was observed that any of the pits had been re-cut, but to judge from the depositional sequence, it seems certain that the pits were not all used at the same time, though their precise stratigraphical relationship is difficult to determine at this stage. It is clear, however, that three of the pits (nos 3, 4 and 5) interrupt the edges of a sub-rectangular house with a sunken floor that lay 10 cm below the surrounding surface outside. A few post holes preserved along one edge and hints of others are the only remnants of its wattle-and-daub superstructure. The floor of the house was replastered at least four times and each time the rendering was continued up the base of the wall. Charcoal specks and ash within the house tinged its earthen floor a dark grey.

Last season a tall, finely incised jar was recovered from a pit that cut an Early Trans-Caucasian mud brick building⁹. On the basis of stratigraphy and content, which included fragments of a grey 'Syrian Bottle', the pit was assigned to the "very end of the Early Trans-Caucasian cultural phase and the period immediately after, termed Markopi in Georgia". Although no samples suitable for radiocarbon analysis were obtained from this pit, further work around this area has now revealed that it defines, in relative terms, the beginning of the 'pit phase' in the lower northeastern operations

Two significant burials of the Trialeti tradition can now also be placed in the lowest 'pit phase' level. The position of Burial 1, a small pit grave, located against the eastern section

⁹ Sagona, Erkmen, Sagona, Thomas 1996: 37, Fig. 2.

of trench M16, was made clear on the surface with a capping stone, measuring 50x48x30 cm. The grave contained a (female?)¹⁰ skeleton in a crouched position bedded on eleven stones of different sizes arranged to follow the contours of the body (Pl. 5). Placed on its left side, the skeleton was found with its head pointing northwest and its face looking awkwardly over the right shoulder. Grave goods comprised a bronze lunate hairring (Fig. 15:4)¹¹ found near the hip and a black incised jar which had been capped with a flat stone (Fig. 8; Pl. 6). The vessel is thin-walled, heavily gritted and quite friable, having been burnt on the inside, perhaps as a result of some sort of burial ritual¹². Typologically this round bellied vessel with its row of incised triangles pendant to the shoulder invites comparisons with those found in the Trialeti kurgans, though none of the published examples offers a close match¹³. Some of the bones of the skeleton were submitted for radiocarbon analysis and have provided a calibrated absolute date range of 2325–1920 B.C (Beta-95225) for this crucial period. This reading is consistent with the 3530 ± 110 BP date (Beta-955221) on a charcoal sample collected from a steep-sided pit situated above the grave.

Burial 2 was only partly exposed, the rest remaining unexcavated under the southern and eastern sections of Trench M16 (Fig. 2; Pl. 7). This grave also had a large capping stone on its surface, which marked the position of a shaft, measuring internally about 2 x 2.75 m so far, and 2.75 m deep. The shaft was filled with stone rubble and at its base was a hollow which contained the partly disarticulated bones of an individual facing north. A pair of toggles fashioned from antler (Fig. 10:2,3; Pl. 8), one found near the hands, the other at the feet, were presumably used to bind the limbs of the individual who was laid to rest wearing a necklace of fine white gypsum beads (Pl. 8). Two other grave goods have been recovered so far. An incised black burnished Trialeti type jar, larger than the one recovered from Burial 1, was placed directly above the body (Fig. 9). The second object is curious. It is Y-shaped and painstakingly hollowed from a section of a deer's antler (Fig. 10:1; Pl. 8). Each end has three perforations, and the main branch is smoothed and discoloured from use wear. Its precise function is uncertain at this stage, though both its shape and perforations suggest that it was probably a connecting part of a larger device. Furthermore, the delicate nature of the object lends itself to an interpretation that it may have been a component of musical wind instrument, or some other apparatus that required the passage of air¹⁴.

An examination of the ceramic assemblage from levels dateable to the second millennium points to several interesting and hitherto undetected trends that necessitate a rethinking of eastern

¹⁰ Skeletons found this season await detailed analysis.

¹¹ Cf Sagona, Erkmen, Sagona, Thomas 1996: Fig:9.

¹² Residue collected from inside the jar has been submitted for analysis.

¹³ Kuftin 1941; Djaparidze 1969; Gogadze 1972; Miron and Orthmann 1995:81–94.

¹⁴ The use of *Cannabis* in Scythian funerary rites is reasonably well documented in historical texts. Also well attested in both literary and ethnographic records is the practice of inhaling hemp seed vapours to induce shamanistic trance; see Emboden 1972: 222–24. Although the association between the use of hallucinogens and the burial rites at Sos Höyük must remain speculative until detailed chemical analyses are carried out on the recovered residues, it is nonetheless worth considering whether shamanism had any role in the socioreligious ideology of prehistoric eastern Anatolia, and whether such practices, which depend on altered forms of perception, are identifiable in the material culture. For studies on related topics concerned with prehistoric Europe see Bradley 1989; Sherratt 1991; Sherratt 1995; Dronfield 1995.

Anatolian Bronze Age chronology and cultural developments. In the first place, Early Trans-Caucasian pottery is the predominant ware type at Sos Höyük during the second millennium B.C. The well known shapes with their black polished exteriors and smoothed reddish brown interiors, or vessels with surfaces that have been mottled through firing are clearly associated with the pits and the round house in trenches M15 and M16. In the second place, there is a different category of ceramics that could easily be mistaken for Early Trans-Caucasian. This group bears the same burnished surfaces and colour schemes as Early Trans-Caucasian, but is distinguished by its heavily gritted fabric. In section, the sherds do not reveal the distinctive layering evident in Early Trans-Caucasian pottery, but instead are built from clay that is uniform in colour, mostly brown, bearing a large amount of semi-coarse to coarse white grit inclusions (Pl. 9)¹⁵. Many of the traditional Early Trans-Caucasian shapes continue and are accompanied by a number of new forms, including holemouth jars and a straight sided cup (Fig. 11:7). Third, Martkopi-like vessels are clearly in the minority. They are represented mostly by wide bellied bowls (Fig. 11: 1, 2, 5) made from a well levigated, compact fabric with few grit inclusions. Occasionally, jars have 'Nakhichevan' handles attached to the rim (Fig. 7:6). Their exterior surface is black and well polished, sometimes enhanced with a silvery sheen, whereas the interior is a smoothed greyish brown or pale brown. Sherd sections reveal clear evidence of controlled firing with their thickness blackened to about 75%. Martkopi-like vessels that are decorated are likely to bear finely incised designs, usually around the upper part of the body. New forms, including pedestal bases (Fig. 11:6), are associated with the Martkopi group. Finally, and perhaps most importantly, it seems reasonable to assume that at Sos Höyük those vessels which were selected to accompany the remains of the dead in the Trialeti burials were not drawn directly from the domestic repertoire¹⁶.

The general impression gained from the radiocarbon evidence is that during the second millennium B.C. Sos Höyük was occupied intermittently. Moreover, excavations have confirmed that the Early Trans-Caucasian cultural tradition, in its broadest sense, continued well into that millennium, requiring us to consider an extended chronology for this cultural complex which is often limited to the third millennium B.C.¹⁷. Several changes occurred within this continuum, most notably an increase in the number of pits and a corresponding decrease in energy invested in the construction of substantial structures. A cursory examination of remains from the nearby sites of Pulus and Güzelova held in Erzurum Museum reveal similarities with the Sos Höyük 'pit phase' assemblage, leading one to suspect that second millennium B.C. settlements there too have remained undetected owing to the lack of absolute dates.

Early Bronze Age

Below the 'pit phase', in M16, excavations uncovered part of late Early Trans-Caucasian structure, rectangular in plan, with a plastered floor disturbed in parts by later pits. Its earth-fast

¹⁵ Sagona, Erkmen, Sagona, Thomas 1996: 32.

¹⁶ It is likely, then, that the few stamped and incised Trialeti fragments found mostly in disturbed pits in the previous two seasons ((Sagona, Sagona, Özkorucuklu 1995: Fig. 9:8–11; Sagona, Erkmen, Sagona, Thomas 1996: Fig. 13:6) belonged to vessels originally placed in graves.

¹⁷ For a recent discussions on the chronological problems of this period see Edens 1995, Glumac and Anthony 1992; see Robinson for the Trialeti chronology.

stone foundations are two courses wide. In the centre of the house, two horse-shoe-shaped discolourations in the soil showed up prominently and attested to the position of a pair of andirons about 50 cm across. Stratigraphically, the structure is contemporary with the round-cornered freestanding room exposed last season¹⁸. A sample collected from below the north-south wall gave a calibrated date range of 2890–2475 B.C. (Beta-95220), suggesting that the building belongs to the first half of the third millennium B.C.

Work in L17b revealed a room that is possibly the eastern extension of the round-cornered house, also of late Early Trans-Caucasian date, exposed last season in M17. It had a plastered floor and a hearth in the eastern end, and was defined along the north by a straight wall. Below this at least two floor levels were identified, one containing an interesting clay bin, possibly for the storage of food, near a circular hearth (Pl.10).

The earliest structure uncovered this season was totally unexpected. It comprised a massive curved wall with clearly defined edges extending from M16d, where it was severed by Burial 2, through M17a/b and L17b, and possibly into L17a, covering much the lower operation (Pls 11, 12). Built of locally acquired large stones (25–70 cm across) with an inner packing of stone fill and hard clay, the wall measures about 2.5 m wide and is preserved in sections to a maximum height of five courses. A large tumble of stones in the southeast of M16c abuts the wall and obscures its face. By the end of the season, neither the base of the wall nor an occupation floor were defined, suggesting a substantial deposit. Excavations inside the wall revealed an interleaving sequence of ash, crumbly white gypsum and a variety of soil types. It is too early to comment on the purpose of this wall except to say that its curvature and position within the settlement makes it unlikely that it served as an enclosure wall. Rather it appears to be part of a large circular (public?) building.

Many of the Early Trans-Caucasian pottery types that have already been reported continued to appear. These include carinated bowls (Fig. 11:9), and those with recessed necks and rounded profiles (Fig. 11:4, 10) that in time assume accentuated girths (Fig. 11:3), foreshadowing the flattened bellies of Martkopi-like bowls (Fig. 11:1, 2, 5). Open, hemispherical bowls are represented by Figs 11:8; 8:2, 3, the latter of which has small handles attached to the rim. Tall recess-necked jars (Fig. 12:1), some ornamented (Fig. 6:5), are part of this horizon. Decorated pieces are not very common, but display a range of techniques and designs, including fine relief patterns on trays (Fig. 7:5), well executed incised designs (Fig. 7:4) and deeply furrowed patterns on large vessels (Fig. 7:3). Generally, these vessels embody a higher degree of productive investment with the use of complex decorative motifs.

Andiron fragments were still quite common. Although unprovenanced, having been found during the construction of a house along the northeastern edge of the mound, the anthropomorphic fragment illustrated in Fig 13:1 is presented because of similarities to a piece from Büyüktepe Höyük¹⁹. A variation of the andiron and a type that represents the ultimate in portability is represented by the three props found together in Trench 17b (Fig. 13:2, 3, 4). Obsidian continued to be found in abundance. Nine fine blades were found together in a high density area in Trench M17a (Fig. 14:1–4, 8–10; 15:1–2), and finely fashioned arrowheads occurred

¹⁸ Sagona, Erkmen, Sagona, Thomas 1996: 33, Fig. 3.

¹⁹ Sagona, Pemberton and McPhee 1993: Fig. 2:1.

throughout the deposits (Fig. 14:5–7). The butt end of an edge ground axe (Fig. 15:3), expertly drilled in the centre, is further testimony to the stone working abilities of the inhabitants. Many of the bone and antler types reported earlier appeared again this season. Noteworthy is the hafting device carved from antler (Fig. 15:6) with a notch cut in the tip to accommodate a small arrowhead.

FAUNAL REMAINS FROM THE EARLY BRONZE AGE: A Preliminary Report Sarah Howells

Our understanding of the subsistence patterns and agricultural economies of north-east Turkey prior to modern times has remained largely speculative owing to the limited archaeological work in the area. Abundant faunal material recovered in association with each cultural context at Sos Höyük during the 1994 and 1995 excavations promises to redress this situation, further supplemented by earlier investigations at Büyüktepe Höyük. This preliminary report concerns the faunal remains deriving from of Early Bronze Age contexts at Sos Höyük²⁰.

The Site

Sos Höyük is located in the village of Yiğittaşı on the Erzurum plain. At an altitude of approximately eighteen hundred metres above sea level, the site is situated amidst the low mountains of the Anatolian plateau²¹. The surrounding vegetational biota comprises steppe with few trees aside from the ubiquitous poplar stands that surround villages and towns. The region is characterised by extremely harsh winters coupled with relatively mild summers of limited duration. Daily maximum temperatures recorded for January are consistently below minus fifteen degrees Celsius, whilst summer is characterised by daily temperatures averaging in the twenties and rarely exceeding thirty degrees²². Precipitation averages 300 to 400 millimetres per year²³.

The agricultural economy of Yiğittaşı is centred upon animal husbandry and crop production. Cattle and mixed herds of sheep and goat, in which sheep predominate, form the focus of the animal based agriculture. Horses, dogs, cats and poultry including chickens, geese and turkeys supplement these primary domesticates. The principal crops under cultivation include potatoes, wheat, and fodder, with the small scale production of 'peppers, beans, lettuce and other vegetables'²⁴. Wildlife in the region includes wolf (*Canis lupus*), wild pig (*Sus scrofa*), brown bear (*Ursus arctos*), fox (*Vulpes vulpes*), hare (*Lepus europaeus*), and marbled polecat (*Vormela peregusna*). The abundant bird life includes magpies (*Pica pica*), hooded crows (*Corvus corone cornix*), storks (*Ciconia ciconia*), and hoopoes (*Upupa epops*).

²⁰ The faunal material from the Early Bronze Age and Iron Age contexts at both Sos Höyük and Büyüktepe Höyük are being analysed by the author for her doctoral dissertation at the University of Melbourne.

²¹ On the location of the site see Sagona, Sagona and Özkorucuklu 1995.

²² Alex 1983a; Alex 1983b.

²³ Alex 1985.

²⁴ Sagona, Sagona and Özkorucuklu 1995:215.

The Faunal Remains

A total of 10,342 specimens from Early Bronze Age levels at Sos Höyük have been analysed (Table 2). The fragmentary nature of the deposit is reflected in the high percentage of unidentifiable finds comprising 62.06% of the total number of specimens, and 33.62% of the total weight. Relative species representation was calculated in terms of both the number of specimens and weight.

Cattle

Although less abundant than ovicaprids in terms of the number of fragments, domestic cattle illustrate a clear predominance by weight within the excavated sample (Table 2). As relatively few examples of each bone element provided measurements, differentiation of wild from domestic specimens was carried out by means of a logarithm ratio diagram as devised by Uerpmann²⁵. Unfortunately, very few measurements of aurochs from the Near East are available for comparison owing to both a lack of published material and the relative scarcity of wild cattle remains at excavated sites in the region. The skeleton chosen as the standard for comparison was a female *Bos primigenius* dating to the Boreal period from Ullerslev in Sweden. Measurements and a description of this skeleton are provided by Degerbøl²⁶. From the ratio diagram (Fig. 17) it is clear that the majority of specimens are significantly smaller than the standard and thus appear to represent domestic animals. Two specimens are larger than the standard, suggesting that wild cattle may be included amongst the range of species exploited at Sos Höyük during the Early Bronze Age.

The mandibular teeth of the domestic cattle were analysed according to the system used by Boessneck and von den Driesch²⁷. Although the sample comprised only twenty five specimens, it is clear that mortality was significantly higher amongst adult animals with 80% of the sample surviving beyond thirty-six months of age (Table 3). Furthermore, 64% of the specimens display either medium or heavy wear on the third molar, indicating that most animals in the sample survived well beyond three years of age. Whilst neonatal mortality was not apparent, perhaps due to preservational biases, the six to eighteen month age group was represented by only 20% of the specimens. Despite the scarcity of remains, the data point to mortality being highest amongst adult animals with juveniles being extremely poorly represented. Evidence derived from the analysis of epiphyseal fusion, based upon three hundred and seven specimens, essentially corroborates this view (Table 4). An obvious trend toward maintaining the animals into adulthood is apparent, with over 60% of the specimens surviving either into or beyond their fourth year. Both dental and post cranial evidence therefore reflect high adult mortality, and suggest a focus upon secondary products.

Sheep and Goats

Ovicaprids constituted the most abundant category represented amongst the excavated remains from Early Bronze Age contexts, and were surpassed only by cattle in terms of their

²⁵ Uerpmann 1979.

²⁶ Degerbøl and Fredskild 1970.

²⁷ Boessneck and von den Driesch 1975; idem 1983.

overall weight (Table 2). The specimens were examined according to the characteristics outlined by Boessneck, and Boessneck, Müller and Teichert for the separation of sheep and goat bones, with the aid of modern domestic sheep and goat reference skeletons²⁸. Amongst the excavated remains, sheep outnumber goat in a ratio of 3.1 to 1.

The metrical characteristics of the sample of sheep and goat bones from Sos Höyük were examined using a logarithm ratio diagram. Standard measurements were derived from a wild sheep and two wild goats respectively, as described by Uerpmann²⁹. Two hundred and nine ovine specimens were plotted against the standard (Fig. 18). The majority approximated a normal distribution about the zero line and are representative of domestic sheep similar in size to the wild standard. A small number of specimens also formed a cluster to the right of the standard and as such may be interpreted as wild sheep. The ratio diagram thus revealed a vast predominance of domestic over the larger wild sheep.

Fifty-nine caprine specimens were plotted against the wild goat standard (Fig. 19). The distribution of the majority of specimens to the left of the standard is indicative of their domestic status. A single specimen lay separated from the group to the right of the standard. The fragmentary nature of this specimen, and the strong sexual dimorphism displayed by goats, precluded its identification as either a male domestic or a wild female goat.

The domestic mandibular remains were investigated according to the method employed by Boessneck and von den Driesch³⁰. The analysis of seventy-five ovicaprid specimens revealed that almost one quarter (22.67%) of the sample died within the first year, a further quarter (24%) comprised yearling mortality, and one fifth of the sample died as sub- or young adults, that is between two and four years of age (Table 5). One third of the animals survived beyond four years of age and thus represented mature adults. No neonatal or senescent mortality was recorded within the sample.

The thirty-five ovine mandibles were analysed separately in order to assess the relative contribution of sheep and goat mortality to the ovicaprid data (Table 4). The resulting picture of mortality is very similar to that obtained for the combined ovicaprid sample. This may suggest that sheep made up the majority of the mandibles classed as ovicaprid. Alternatively, it may be indicative that the goat mortality profile was very similar to that of the sheep, thus resulting in little alteration to the ovine mortality profile when the mandibles of both species were analysed in a combined sample. The dearth of mandibles identified as *Capra* unfortunately did not permit direct investigation of caprine mortality and thus testing of these hypotheses.

Epiphyseal fusion data, based upon five hundred and twenty-three ovicaprid specimens (Table 6), provides a mortality profile which essentially corroborates that derived from the dental data. While juvenile mortality was calculated at only 15.79%, approximately half (50.72%) of the animals had died by their third year, and only one third survived into adulthood. This is strongly suggestive of a herd management strategy focussed upon primary products.

The stature of the domestic sheep and goats was investigated through wither height estimations. These were calculated using the greatest length of various long bone elements multiplied

²⁸ Boessneck 1969; Boessneck, Müller and Teichert 1964.

²⁹ Uerpmann 1979:175.

³⁰ Boessneck and von den Driesch 1975.

by Teichert's conversion factors³¹. Determination of the ovine wither heights was based upon a sample of ten long bones including one radius, seven metacarpal and two metatarsal bones. These calculations yielded a mean wither height of 64.45 centimetres, with a reasonably broad range (58.09-69.68 centimetres), but relatively low coefficient of variation of 5.91% and are representative of a medium sized breed. Wither height estimation for the domestic goats was based upon a single complete metacarpal which yielded a wither height of 60.89 centimetres and again signifies a medium sized breed.

Pigs

Comprising only 0.19% by weight of the total faunal remains, domestic pigs do not appear to have contributed significantly to the subsistence requirements of the Early Bronze Age inhabitants at Sos Höyük. Owing to their small number, the pig remains were investigated by means of a logarithm ratio diagram. The standard was based upon wild pig measurements derived from a sample of modern wild boar from Kızılcahamam, Turkey³². Of the four specimens plotted, three are significantly smaller than the standard and are clearly representative of domestic stock (Fig. 20). Wild pig may be seen in the single specimen that is larger than the standard. The extremely small size of the sample unfortunately precludes a more detailed investigation of pig exploitation at Sos Höyük.

Other domesticates

Additional domesticates present at the site included horse, medium sized dog, and chicken. These species were, however, poorly represented relative to the cattle and ovicaprid remains, comprising only 0.80% of the total sample by weight. The presence of domestic chicken in the Early Bronze levels at Sos Höyük provides support for the early appearance of the chicken in the Near East as suggested by Buitenhuis on the basis of a specimen from Hayaz Höyük³³. None of these specimens displayed evidence of butchery marks.

Wild Species

That some exploitation of the natural fauna of the region took place is clearly illustrated by the presence of wild pig, brown bear, aurochs, wild sheep, red deer, common red fox, hare and perhaps wild goat and bison. The limited contribution of these wild species to the subsistence economy of the Early Bronze Age settlement is, however, implied by the fact that, when combined, they comprised only 2.62% of the total weight of excavated remains. The relative contribution of wild species to the diet is unclear. Whilst the remains of wild pig and aurochs are confined to post cranial elements, implying that these species contributed meat to the diet, red deer remains were almost exclusively composed of antler fragments which appeared to have served as a raw material for the manufacture of tools or ornamental items.

³¹ Teichert 1993:40.

³² Payne and Bull 1993:40.

³³ Buitenhuis 1985:67.

Environment

The presence of various wild species may elucidate the nature of the vegetational environment around Sos Höyük during the third millennium. Although red deer and wild pig are adaptable to a great diversity of biotopes, these species are most common in forested regions and woodlands. Hares are similarly adaptable although showing a preference for scrub, woodland and farmland mosaics. Wild sheep and brown bears are most common throughout mountainous woodland and coniferous forest respectively. By contrast, the little owl, great bustard, and golden eagle each show a preference for open terrain with few trees. The presence of mallards, marsh harriers and common crane implies the propinquity of marshes and swamp. The diversity of habitat preferences exhibited by the wildlife represented from Early Bronze Age contexts indicate that if wooded areas were not present in the immediate vicinity of the site, these habitats may have been located within the region during this period.

The faunal remains from the Early Bronze Age levels at Sos Höyük point to a subsistence economy focussed upon domestic cattle and ovicaprids. This appears to have been supplemented to a small extent by the hunting of wild species including aurochs, sheep and pig and the exploitation of additional wild taxa including brown bears, hares, red deer and birds.

ADDENDUM

Since this paper was written, two further samples collected from the ancient mound have been analyzed for radiocarbon. Beta-98876 (sample 28): 3750 ± 70 BP (cal BC 2350-1945) was obtained from human bone in Burial 2 (Trench M16/locus 3617/basket 240). This date corroborates the reading from Burial 1 and supports the view that the beginning of the 'pit phase' at Sos Höyük should be placed at the very end of the third millennium BC. Beta 100935 (sample 29): 860 ± 40 BP (cal AD 1045-1105 and 1115-1265) is an AMS reading of a sample of carburised iron. The fragment was clearly manufactured during the Medieval occupation, the uppermost level on the summit, but was collected from a disturbed context in Trench M16, in the lower northeastern sector.

Tables 1-6 see pages 201-203.

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CATALOGUE

Each entry begins with a notation representing the object's stratigraphical context. The three components are: Trench/Locus/Basket. For a plan of the site see Sagona, Sagona and Özkorucuklu 1995:Fig. 2.

Figure 5

1. L 15/720/51A. Medieval. Jar with handle; WM; hard, brickly brown 15YR 5.5/4I fabric with dark grey 12.5YR 4/0I core; medium grit inclusions and occasional semi-coarse piece; plain all over, though smoke blackened around the handle and rim; decorated with incised lines along the rim, neck and shoulder, and a tooled pattern down the spine of the handle.
2. K 14b/1039/111. Medieval. Round bodied jar with flaring rim; WM; hard, crisp, dark greyish brown 15YR 6/1I fabric with medium white inclusions and some mica specks; plain and smoke blackened exterior and greyish brown to black interior; wheel striations and wipe marks on interior surface; a twist pattern placed between two horizontals decorates the shoulder.
3. M 14/232/51. Iron Age. Cooking pot; HM; semi-coarse to coarse fabric varies in colour from brown 15 YR 5/6I through greyish brown 15YR 5/2I to black; grit inclusions are brown and black; exterior surface may have been lightly burnished originally, but blackening from smoke has obliterated traces of surface treatment.
4. M 13c/1932/45. Iron Age. Gadrooned bowl fragment; HM; thin-walled vessel built from black 10YR 3/1I fabric with a small amount of medium to semi-fine white grit inclusions; the texture is generally quite compact, though a few small voids are evident; consistent colour throughout enhanced with a high burnish on both surfaces; the fluted surface is raised on the exterior and correspondingly depressed on the interior.
5. K 14d/1036/108. Iron Age. Bowl with high carinated shoulder; HM; brickly orange fabric 12.5YR

5/6I with medium grit and a few voids, fired to a reddish brown 15YR 6/6I on the exterior; smoothed and lightly burnished on both sides; broad band in dark brown 10R 4/4I painted on the exterior shoulder and over the interior rim, highlighted with white painted design.

6. L 14/384/203. Iron Age. Bowl; HM; two fragments from an open, deep bowl with small, drilled holes, probably to effect mends; fabric is black and compact in texture, with medium grit inclusions; slipped all over in reddish brown 12.5YR 5/6I and smoke darkened on the lower interior surface; ornamented with a vertical design of running chevrons and connected arcs painted in fugitive white.

7. M 14d/243/70A. Iron Age. Bowl; WM?; brown 17.5YR 4.5/4I fabric with mostly medium white and some mixed grit inclusions; a few voids; plain brown on the interior, red slipped 10R 4/5I and burnished exterior; smoke blackened in parts; horizontal lug handle at the rim; decorated by two pairs of horizontal furrows.

8. L 16d/1721/B56. Iron Age. Carinated bowl; WM; compact, well baked, hard, black fabric, some sparse fine grit inclusions, mostly white; originally fired to a pale grey 10YR 5.5/2I colour on both surfaces, but now the exterior is mottled in shades of grey to black and small patches of brown 10R 4.5/4I; interior has a black patch; an effective polish on both surfaces has obliterated any signs of wheel striations.

Figure 6

1. L 16d/1722/59. Iron Age. Hole-mouth bowl with vertical, solid lug handle high on the shoulder; HM; black compact paste with a few medium grit inclusions; lightly burnished all over; lumpy interior.

2. M 16/572/146, 4.6.96. Iron Age. Jar with pierced lug handle high on the shoulder; HM; orange brown 15YR 6/6I gritty fabric with medium black and white grit inclusions, some are semi-coarse; paste reveals a few voids and lamination seams; fired to a range of colours on both surfaces, including brown 15YR 5/4I, dark brown 15YR 4/1I, grey 10YR 6/1I and pale beige 10YR 8/2I.

3. M 15d/1802/13. Iron Age. Large, thick-walled jar with rolled rim; HM; heavy, black gritty fabric with medium to semi-coarse inclusions and some voids; overfiring has turned a cream slip on both surfaces to beige 10YR 6.5/1I, and crackled the exterior.

4. M 15d/1802/12. Iron Age. Large, thick-walled jar with flaring rim; WM; orange ware 15YR 6/6I with semi-coarse grit inclusions; slipped in greenish cream 10YR 7.5/1I; overfired to a crackled surface on the exterior.

5. M 17a/153/272. Early Bronze Age. Jar with gently everted rim; HM; section is clearly laminated with a black exterior layer and a pale orange-brown 17.5YR 6.5/5I interior; blackened to grey in parts by smoke; semi-coarse to medium sized mixed inclusions; black burnished exterior, lightly burnished pale orange-brown interior, abraded in parts; decorated with a grooved linear and dot design.

Figure 7

1. M 15d/1803/17. Iron Age. Deep jar; WM; hard, orange brown 17.5YR 5.5/4I fabric with coarse

grey and white grit inclusions; originally cream slipped 12.5Y 7/2I, but now greenish beige from overfiring which has crackled the exterior and distorted the vessel; smoothed interior; smoke blackened patch on the exterior.

2. L 13/1368/117. Art. 2507. Iron Age. Lid with lumpy surface; HM; solid vertical knob handle with slight depression on the top; grey fabric 15YR 5/1I with medium white grit inclusions; rough, greyish brown 17.5YR 6/3.5I underside; plain, brown 17.5YR 6/4I upper surface; smoke blackened around the edge on the underside; wipe marks on both faces.

3. M 17/157/285. Early Bronze Age. Fragment of a thick-walled large storage vessel; HM; black fabric fired to brown 17.5YR 6/3I near the inner surface; medium sized, white grit inclusions with occasional semi-coarse and coarse pieces; decorated with a deep, bold relief design; exterior surface is black and thoroughly burnished, the interior is smoothed and smoke blackened.

4. M 16/3611/238. Early Bronze Age. Sharply carinated vessel; HM; compact fabric revealing a sandwiched core, black toward the exterior, reddish brown 12.5YR 5.5/6I on the interior half; medium to semi-fine white grit inclusions, some small voids; well polished exterior, smoothed reddish brown interior; an incised linear design and dimples combine to decorate the vessel above the carination.

5. L 17b/1551/224. Early Bronze Age. Tray fragment; HM; black fabric with a sparse amount of medium mixed inclusions; dark brown 15YR 4/1I smoothed interior, brown 15YR 6/4I along the edge; black, highly burnished exterior; fine relief linear decoration on the exterior.

6. L 17/Surface/190A. Middle Bronze Age. Finely modelled Nakhichevan lug handle with small, shallow dimple on the top; HM; black fabric with medium mixed grit inclusions; lightly burnished, greyish brown 10YR 4/1I interior; black, highly polished exterior with clear signs of a silver sheen on the body of the vessel; top of the rim is half black and half greyish brown.

Figure 8

M 16/3613/216A (Burial 1). Middle Bronze Age. Large, round-bodied jar with small everted rim; HM; dark brown 17.5YR 5/2I gritty, compact fabric reduced to black along the edges of the wall; medium mixed grit inclusions; plain greyish brown to black interior, polished over the rim; black, lightly burnished exterior; sharply incised herringbone design above a row of pendant hatched triangles decorates the shoulder.

Figure 9

M 16/3617/234 (Burial 2). Middle Bronze Age. Very large, wide bodied jar with everted rim; HM; friable, very gritty fabric with medium mixed inclusions; in section the wall reveals two colours, a pale brown 17.5YR 6/4I interior half, and black exterior; red-brown upper rim on both surfaces; smoothed pale brown 17.5YR 6.5/3I interior surface, black burnished exterior; the neck and shoulder are decorated with an sharply incised design comprising a wide cross hatched band with pendant hatched triangles.

Figure 10

1a-c. M 16/3617/240 (Burial 2), Art 2431. Middle Bronze Age. Y-shaped object made of a carefully hollowed out section of antler. The average thickness of the walls is 3.5 mm. Each of the openings has three small perforations. One end, the larger at the top of the 'Y', has been shaved to a bevel on the interior and is clearly blackened to a width of 11.5 mm. The stain was presumably deposited from an adjoining piece which has not survived, but might have been made from fire hardened wood. There is no other sign of exposure to fire or smoke on the interior and both sides retain the natural, pale yellow colour of the antler. The only other sign of use is a smoothed and darker area in the crook of the 'Y'.

2. M 16/3617/240 (Burial 2), Art 2485. Middle Bronze Age. Toggle, pierced in the middle, cut from a segment of antler. Saw marks are still quite visible at both ends. There is very little use wear sheen on the surface, but some can be seen around the edges of the hole.

3. M 16/3617/240 (Burial 2), Art 2432. Middle Bronze Age. Pierced toggle cut from a section of antler. Use wear sheen evident, with fine criss-crossed filing abrasions around the hole. A few dark patches on one face.

Figure 11

1. M 16/3606/205. Middle Bronze Age. Bowl with thick-walled belly and everted rim; HM; very crisp, fine grey 12.5YR 4/0I fabric, with the occasional white grit and small voids; streaky yellow-grey 12.5YR 2.5/0I to black burnished exterior; streaky grey-brown 10YR 5/4I interior distinguishable in section as a thick, pale layer.

2. M 16/3606/205. Middle Bronze Age. Bowl with thickened rim and belly; HM showing evidence of coil construction; dense and compact fabric with fine grit inclusions and the occasional coarse piece, and a lot of voids; the core is equally divided between black on the exterior half 12.5YR 2.5/0I and grey-brown 10YR 7/1I on the interior; both surfaces are burnished, the exterior more so.

3. L 17/1540/195. Early Bronze Age. Distorted deep bowl with accentuated belly; HM; black fabric with some medium white grit inclusions and a grey brown inner core; the outer layer of the girth has been applied separately evidenced by clear lamination seams in section; black burnished exterior with traces of a silver sheen on the shoulder; grey brown 10R 4.5/1I interior, smoothed around the inside neck and burnished to a darker greyish brown around the lip.

4. M 17a/153/265. Early Bronze Age. Deep bowl with simple rim; HM; burnt vessel, mostly black fabric with medium and semi-coarse grit inclusions; smoothed interior originally pale brown 17.5YR 6.5/4I now pale grey; burnished exterior, dark grey around the lower half, smoke blackened around the rim; abraded surface around the base.

5. M 17a/153/261A. Middle Bronze Age. Small bowl with accentuated girdle; HM; black fabric with medium to semi-coarse white inclusions; plain interior fired to a mottled grey 10YR 5/1I and brown 17.5YR 6.5/3I; black burnished exterior except for the rim which is pale 10YR 7/2I.

6. L 17b/1545/211. Middle Bronze Age. High ring base fragment; HM; black, compact fabric fired to a dark grey 10YR 6/1I on the interior; some voids and a small amount of medium grit inclusions; black burnished exterior.

7. M 16/360/192. Middle Bronze Age. Small, lop-sided goblet with ring base; HM; brown 17.5YR 5/4İ gritty ware with a considerable amount of semi-coarse white grit inclusions and some coarse pieces; fired to a dark grey to black in parts; exterior is pale brown 10YR 6.5/3İ and burnished; plain and partly smoothed interior.

8. M 17a/153/267. Early Bronze Age. Hemispherical bowl; HM; compact fabric which varies in colour from black to reddish brown 12.5YR 5/6İ and only a few semi-fine grit inclusions; section reveals a number of lamination seams and only a few voids; exterior is mottled black and reddish brown 12.5YR 5/6İ, and burnished just under the rim; abraded from use around the carination and base; interior is mottled pale brown 10YR 6/3İ and black.

9. M 17a/173/312A. Early Bronze Age. Bowl; HM; brown clay 10YR 6/4İ, black in the upper section, with sparse semi-fine grit inclusions; a few small voids but generally well levigated; highly black burnished around the neck and shoulder on the exterior, pale brown further down; smoothed, pale brown interior.

10. M 17a/153/265. Early Bronze Age. Cooking pot; HM; dark greyish brown paste with medium white grit inclusions; exterior is mottled and smoke blackened with a colour range from brown 17.5YR 5/4İ through to greyish brown 10YR 5/1İ to black; lightly burnished on the exterior and plain grey on the interior.

Figure 12

1. M 17b/165/302. Early Bronze Age. Recessed necked jar with handle linking base of neck to shoulder; HM; reddish brown 17.5YR 6.5/4İ fabric with medium to semi-coarse mixed grit incusions; smoke blackened in parts, especially at the base; mottled exterior, smoothed on both surfaces.

2. L 17b/1540/197. Early Bronze Age. Rounded bowl with unpierced rectangular lug attached under rim; HM; section reveals a sandwich of black on the exterior half and reddish brown 12.5YR 5/8İ on the interior; medium white grit inclusions and some voids; burnished on both surfaces.

3. M 16/3614/219 A. Early Bronze Age. Deep hemispherical bowl with small pierced-lug at the rim; HM; pale brown 17.5YR 6.5/4İ fabric reduced to black on the outer edge; sparse amount of white medium sized grit inclusions; well burnished mottled exterior; lightly burnished, pale brown interior.

Figure 13

1a-c. Surface, east slope of the mound. Early Bronze Age. Fragment of a male anthropomorphic andiron; dark grey 17.5YR 4/0İ coarse fabric with mixed grit inclusions and slipped in reddish brown 12.5YR 5/6İ; eyes are represented with dimples, another dimple is located on top of the triangular head and a knob represents the penis.

2. L17b/1551/248. Early Bronze Age. Hearth prop; HM; smoke blackened to the left of the dowel hole; similar to no. 3 in fabric and manufacture.

3. L17b/1551/248. Early Bronze Age. Hearth prop; HM; coarse greyish brown 17.5YR 6/2İ and

poorly kneaded fabric at the core baked brown 17.5YR 5/4İ along the edges; mostly white grit inclusions, some are very coarse; smoothed exterior, mottled from pale buff 110YR 7/3İ to grey 110YR 6/1İ; a dowel hole has been scooped out of one face prior to firing; smoke blackened to the right of the hole.

4. L17b/1551/248. Early Bronze Age. Hearth prop; HM; smoke blackened on the back and left side of the dowel hole; similar to no. 3 in fabric and manufacture.

Figure 14

1. M 17a/172/310, Art. 2492. Early Bronze Age. Black obsidian truncated blade.
2. M 17a/172/310, Art. 2494. Early Bronze Age. Black obsidian truncated blade with one edge re-worked to a spokeshave.
3. M 17a/172/310, Art. 2491. Early Bronze Age. Black obsidian blade.
4. M 17a/172/310, Art. 2487. Early Bronze Age. Black obsidian long narrow and truncated blade with retouched edges.
5. M 16/601/191, Art. 2251. Early Bronze Age. Well worked triangular arrowhead; finely retouched; black obsidian.
6. M 15d/1825/89, Art. 2452. Early Bronze Age. Obsidian pressure flaked, triangular arrow head.
7. M 16/592/176, Art. 2228. Middle Bronze Age. Black obsidian pressure flakes arrowhead. Retouch along the edges.
8. M 17a/173/312, Art. 2501. Early Bronze Age. Truncated black obsidian blade with retouched edge.
9. M 17a/172/310, Art. 2489. Early Bronze Age. Truncated black obsidian blade with triangular section.
10. M 17/172/310, Art. 2490. Early Bronze Age. Long, thin, black obsidian blade with notched edge; truncated.

Figure 15

1. M 17a/172/310, Art 2488. Early Bronze Age. Long black obsidian blade with heavily retouched tip.
2. M 17a/172/310, Art. 2493. Early Bronze Age. Black obsidian truncated blades with retouched edges.
3. M 16c/3658/28, Art. 2482. Early Bronze Age. Edge ground axe head made from very fine grained dark brown stone; smoothed body has been drilled for hafting; the hole is straight sided widening only slightly at the surface of the axe.

4. M 16/3613/216A (Burial 1). Middle Bronze Age. Hair-ring formed into one a half-twists of solid, round-sectioned bronze rod; either end is a dulled point.
5. L 17b/1547/213, Art. 2148. Early Bronze Age. Red jasper finial bead which originally had six drilled holes; one end was broken and subsequently smoothed; surface is well polished.
6. M 16/593/179, Art. 2226. Middle Bronze Age. Small point carved from antler with notch cut in the tip; roughly shaped the point may have been a hafting device for a small obsidian arrowhead; cut marks are evident a little short of the middle of the shaft; no sign of polish.
7. L17b/1563/260, Art. 2484. Early Bronze Age. Broken point made of bone, well worked to a flattened shaft with blunted wide head.
8. M 16/572/142, Art. 2193. Middle Bronze Age (?). Netting spacer worked to an wedge at both ends and produced from a slice of antler.
9. M 16/3603/196, Art. 2284. Early Bronze Age. Bone point polished on one side; bone matrix shows through in sections.

Lab. Sample Number	Field No.	Sample Type	Provenance: Trench/Locus/ Pottery Basket	Uncalibrated Date
Beta-74450 (CAMS)	Sos Höyük 1	Charcoal	J14b eroded scarp, below plaster floor	2980 ± 60 BP
Beta-74451	Sos Höyük 2	Charcoal	J14b eroded scarp, above plaster floor	2810 ± 90 BP
Beta-74452	Sos Höyük 3	Charcoal	L17d eroded scarp	4510 ± 70 BP
Beta-74453	Sos Höyük 4	Charcoal	L17d eroded scarp	3230 ± 50 BP
Beta-74454	Sos Höyük 5	Charcoal	L14/338/97	2140 ± 60 BP
Beta-74455	Sos Höyük 6	Charcoal	M16c/506/22	2840 ± 60 BP
Beta-74456	Sos Höyük 7	Charcoal	M16cd/513/44	3300 ± 70 BP
Beta-74457	Sos Höyük 8	Charcoal	M17ab/107/38	3250 ± 80 BP
Beta-74458	Sos Höyük 9	Charcoal	M17ab/110/60	3120 ± 60 BP
Beta-84367	Sos Höyük 10	Charcoal	L13/1333/74	2120 ± 60 BP
Beta-84368	Sos Höyük 11	Charcoal	M17ab/126/148	3300 ± 50 BP
Beta-84369	Sos Höyük 12	Charcoal	M16cd/127/175	3390 ± 60 BP
Beta-84370	Sos Höyük 13	Charcoal	M16ab/535/95	2900 ± 70 BP
Beta-84371	Sos Höyük 14	Charcoal	L17b/1514/66	3570 ± 70 BP
Beta-84372	Sos Höyük 15	Charcoal	L17b/1515/78	4140 ± 60 BP
Beta-95214	Sos Höyük 16	Charcoal	L16d/1732/86	2860 ± 60 BP
Beta-95215	Sos Höyük 17	Charcoal	M15d/1803/17	3090 ± 70 BP
Beta-95216	Sos Höyük 18	Charcoal	M15d/1810/69	3430 ± 60 BP
Beta-95217 (AMS)	Sos Höyük 19	Charcoal	M15d/1810/50	3150 ± 60 BP
Beta-95218	Sos Höyük 20	Charcoal	M15d/1813/53	3310 ± 70 BP
Beta-95219	Sos Höyük 21	Charcoal	M16/591/174	4600 ± 90 BP
Beta-95220	Sos Höyük 22	Charcoal	M16/3605/201	4120 ± 70 BP
Beta-95221	Sos Höyük 23	Charcoal	M16/597/185	3530 ± 110 BP
Beta-95222	Sos Höyük 24	Charcoal	M16c/350/2	4260 ± 70 BP
Beta-95223	Sos Höyük 25	Charcoal	M16/3610/211	4070 ± 50 BP
Beta-95224	Sos Höyük 26	Charcoal	(Burial 1) M16/3613/216	3870 ± 80 BP
Beta-95225	Sos Höyük 27	Bone	(Burial 1) M16/3613/216	3730 ± 70 BP

Table 1. Radiocarbon dates from the excavations at Sos Höyük (Erzurum) 1994-96.

SPECIES	COMMON NAME	N	% BY N	WEIGHT (G)	%BY WEIGHT
Domesticates					
Bos Taurus	Cow	1465	14.17	61836.08	48.22
Ovis/Capra	Sheep/Goat	1901	18.38	18654.45	14.55
including:					
Ovis aries	Sheep	[381]	-	[5632.73]	-
Capra hircus	Goat	[123]	-	[1755.52]	-
Sus scrofa domesticus	Pig	18	0.17	247.43	0.19
Equus sp.		16	0.15	492.68	0.38
Equus caballus	Horse	4	0.04	286.5	0.22
Canis familiaris	Dog	29	0.28	250.29	0.2
Gallus gallus domesticus	Chicken	1	0.01	2.4	0.002
SUB TOTAL		3434	33.2	81769.83	63.77
Wild Species					
Bos primigenius	Auroch	8	0.08	1084.24	0.85
Bison bison?	Bison	6	0.06	218.2	0.17
Ovis orientalis	Wild Sheep	8	0.08	239.25	0.19
Capra aegagrus?	Wild Goat	1	0.01	22.5	0.02
O.orientalis/C.aegagrus	Wild Sheep/Goat	11	0.11	240.6	0.19
Cervus elaphus	Red Deer	14	0.14	1010.39	0.79
Sus scrofa	Wild Pig	4	0.04	132.2	0.1
Ursus arctos	Brown Bear	6	0.06	210.2	0.16
Vulpes vulpes	Common Red Fox	5	0.05	25.1	0.02
Lepus europaeus	Common Hare	12	0.12	10.9	0.01
Rodentia					
Spalax leucodon	Lesser Mole Rat	10	0.1	17	0.01
Mesocricetus auratus	Golden Hamster	12	0.12	30.1	0.02
Unidentified		368	3.56	53.57	0.04
Pisces	Unidentified	6	0.06	1.5	0.001
Aves					
Ardeidae	Unidentified	1	0.01	12.8	0.01
Anatidae	Unidentified	1	0.01	4.8	0.004
Anser sp.		2	0.02	8.9	0.007
Anas platyrhynchos	Mallard	1	0.01	0.2	0.0002
Circus aeruginosus	Marsh Harrier	1	0.01	1	0.0008
Aquila chrysaetos?	Golden Eagle	1	0.01	6.9	0.005
Grus grus	Crane	1	0.01	11.8	0.01
Otis tarda	Great Bustard	3	0.03	7.9	0.01
Athene noctua	Little Owl	1	0.01	0.2	0.0002
Corvus corone cornix	Hooded Crow	1	0.01	0.6	0.0004
Unidentified		6	0.06	6.8	0.01
SUB TOTAL		490	4.74	3357.65	2.62
UNIDENTIFIED					
SMALL		79	0.76	69.51	0.05
MEDIUM		3191	30.85	9540.51	7.44
MEDIUM/LARGE		101	0.98	612.91	0.48
LARGE		2781	26.89	32377.02	25.25
?		266	2.57	506.81	0.4
SUB TOTAL		6418	62.06	43106.76	33.62
TOTAL		10342	100	128234.24	100

Table 2. Early Bronze Age Sos Höyük.

Table 3. Dental Data: Early Bronze Age Bos Taurus.

WEAR STAGE	YEARS	N	%
M1 not yet erupting	<0.5	0	0
M1 erupting		1	4
M1 in wear/M2 not erupting		2	8
M2 erupting	0.5-1.5	2	8
M2 in wear/M3 not erupting	1.5-2	0	0
M3 erupting	2-3	0	0
M3 slightly worn	>3	4	16
M3 medium worn		13	52
M3 heavily worn		3	12
TOTAL		25	100

Table 4. Epiphyseal Fusion Data: Early Bronze Age Bos Taurus.

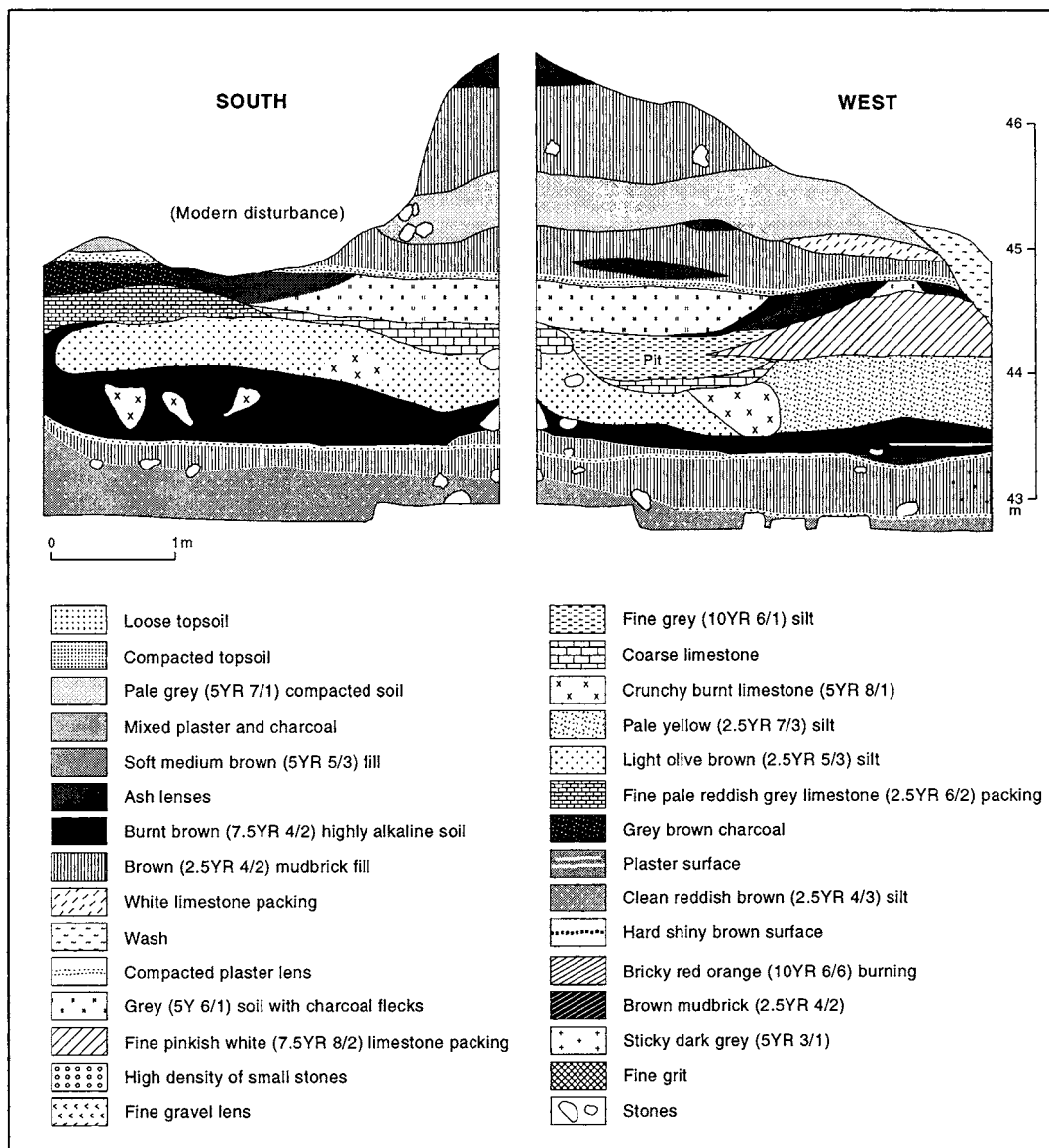
	7-10 MO.	12-20 MO.	24-36 MO.	42-48 MO.
NUMBER	18	178	66	45
% UNFUSED	0	2.79	2.12	37.11

Table 5. Dental Data: Early Bronze Age Ovis/Capra.

WEAR STAGE	YEARS	O/C	%	O	%	C
M1 not yet erupting	<1	0	22.67	0	25.71	0
M1 erupting		3		2		1
M1 in wear/M2 not erupting		6		3		0
M2 erupting	1-2	8	24	4	20	2
M2 in wear/M3 not erupting		14		4		0
M3 erupting	2-4	4	20	3	22.86	0
M3 slightly worn	>4	15		8		1
M3 medium worn		25	33.33	11	31.42	3
M3 heavily worn		0		0		0
TOTAL		75	100	35	100	7

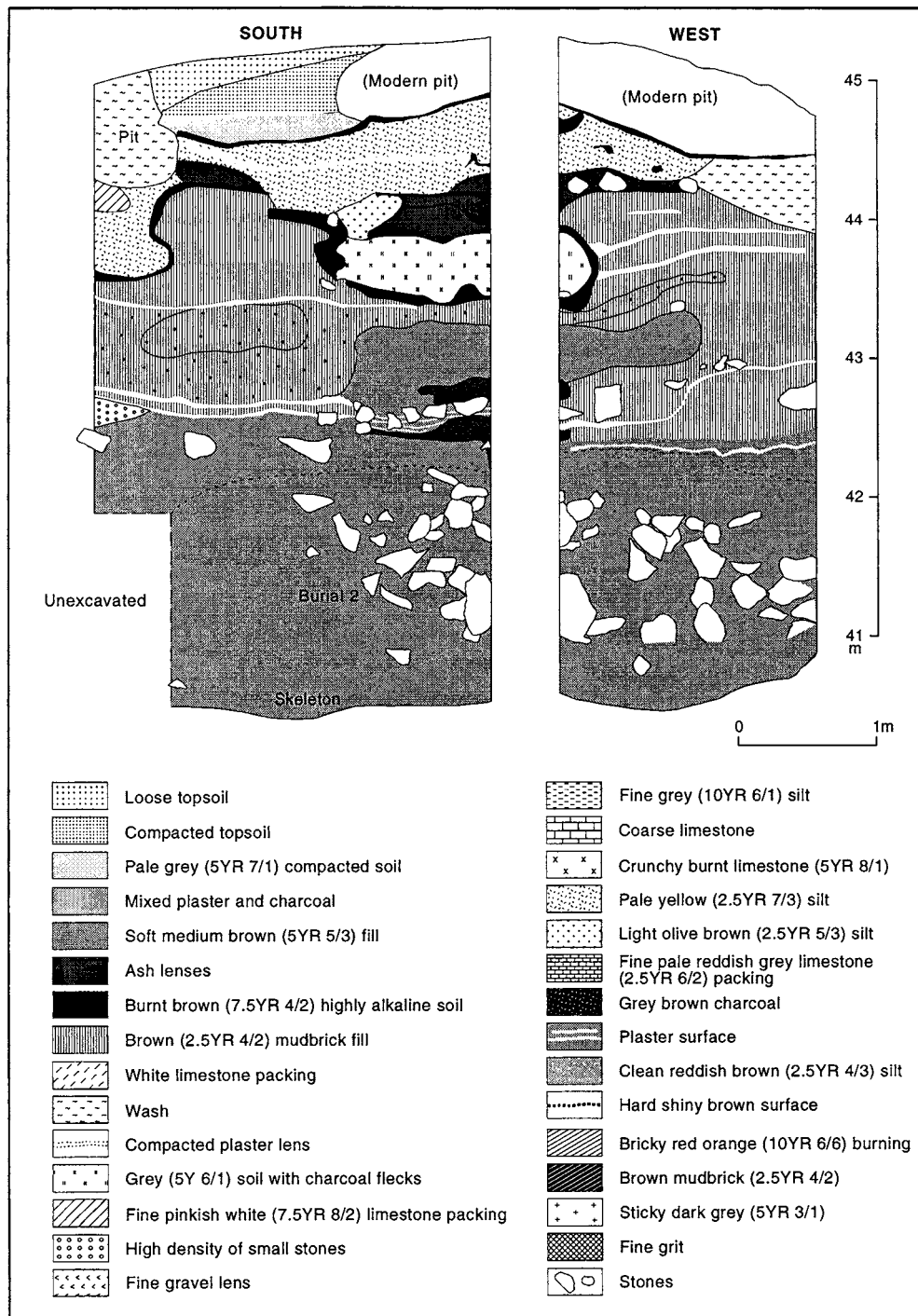
Table 6. Epiphyseal Fusion Data: Ovis/Capra

% UNFUSED	0-12 MO.	13-24 MO.	24-36 MO.	37-48 MO.	N
OVIS/CAPRA	15.79 (N=176)	27.67 (N=206)	50.72 (N=69)	66.67 (N=72)	523
OVIS	3.08 (N=65)	20.48 (N=83)	36.36 (N=33)	42.85 (N=21)	202
CAPRA	0 (N=25)	26.32 (N=19)	36.36 (N=11)	50 (N=2)	57



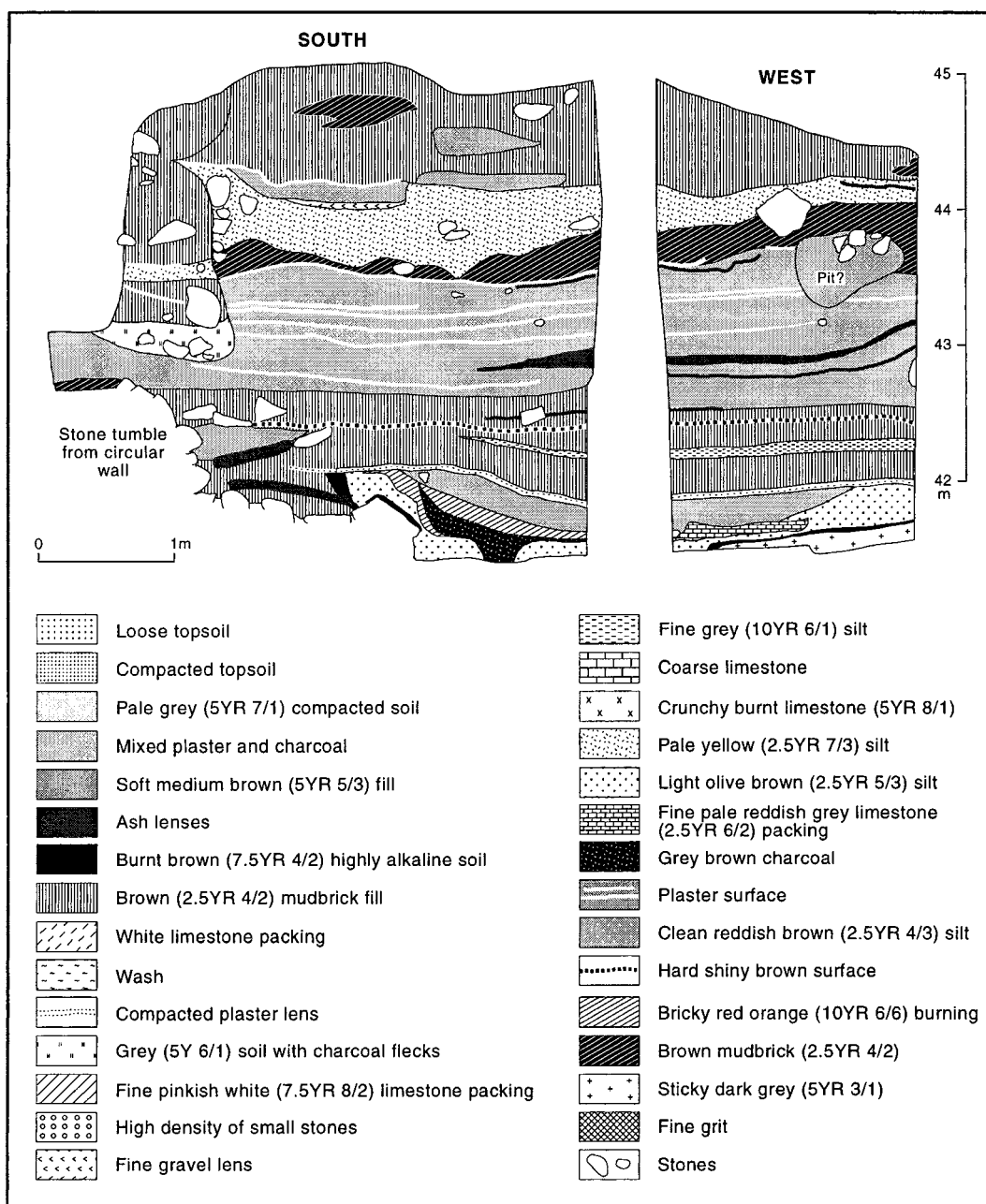
Trench M15d. Detail of south and west sections

Fig. 1.



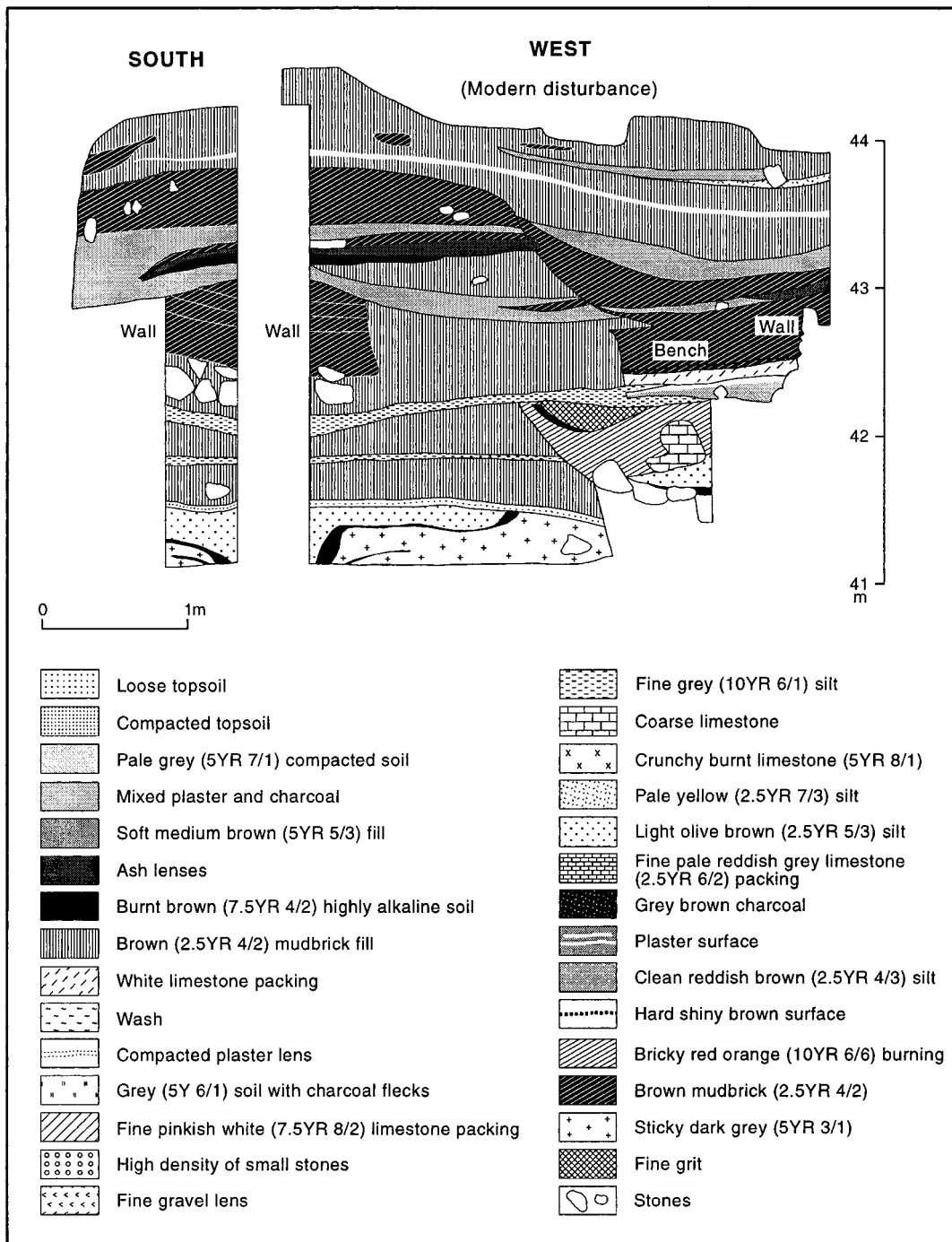
Trench M16 c/d. Detail of south and west sections

Fig. 2.



Trench M16c. Detail of south and west sections

Fig. 3.



Trenches L16d / M16c. Detail of south and west sections

Fig. 4.

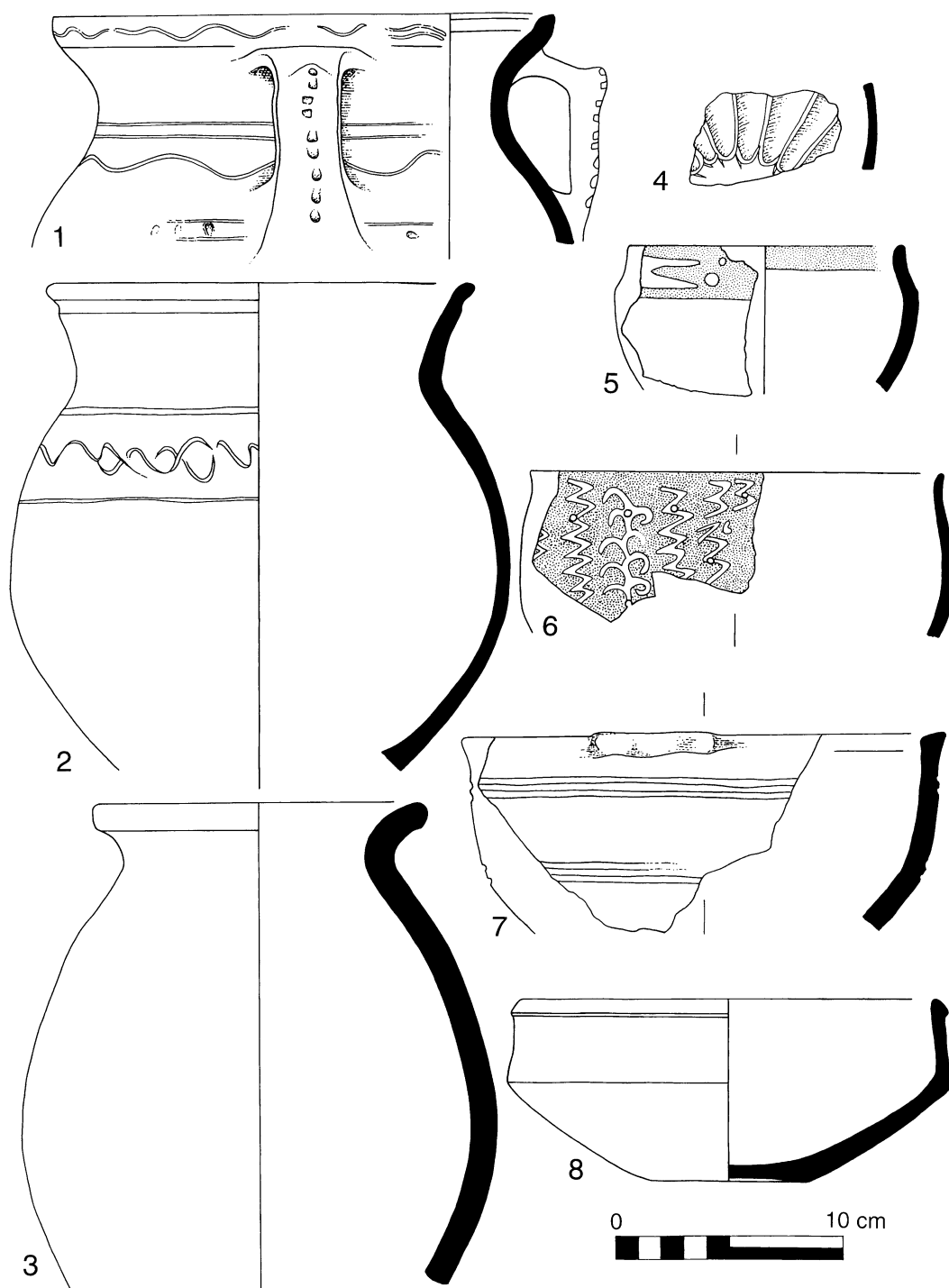


Fig. 5.

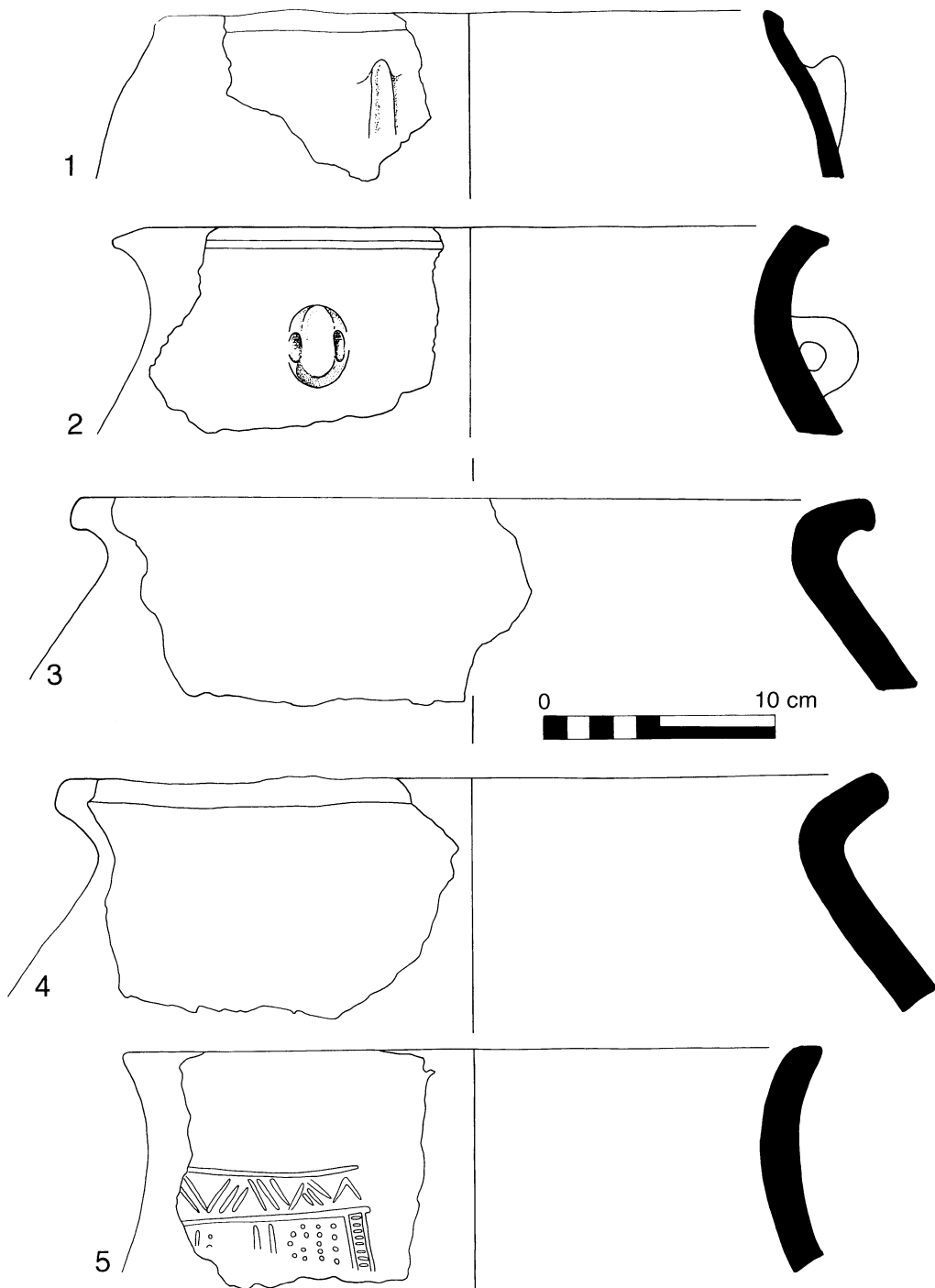


Fig. 6.

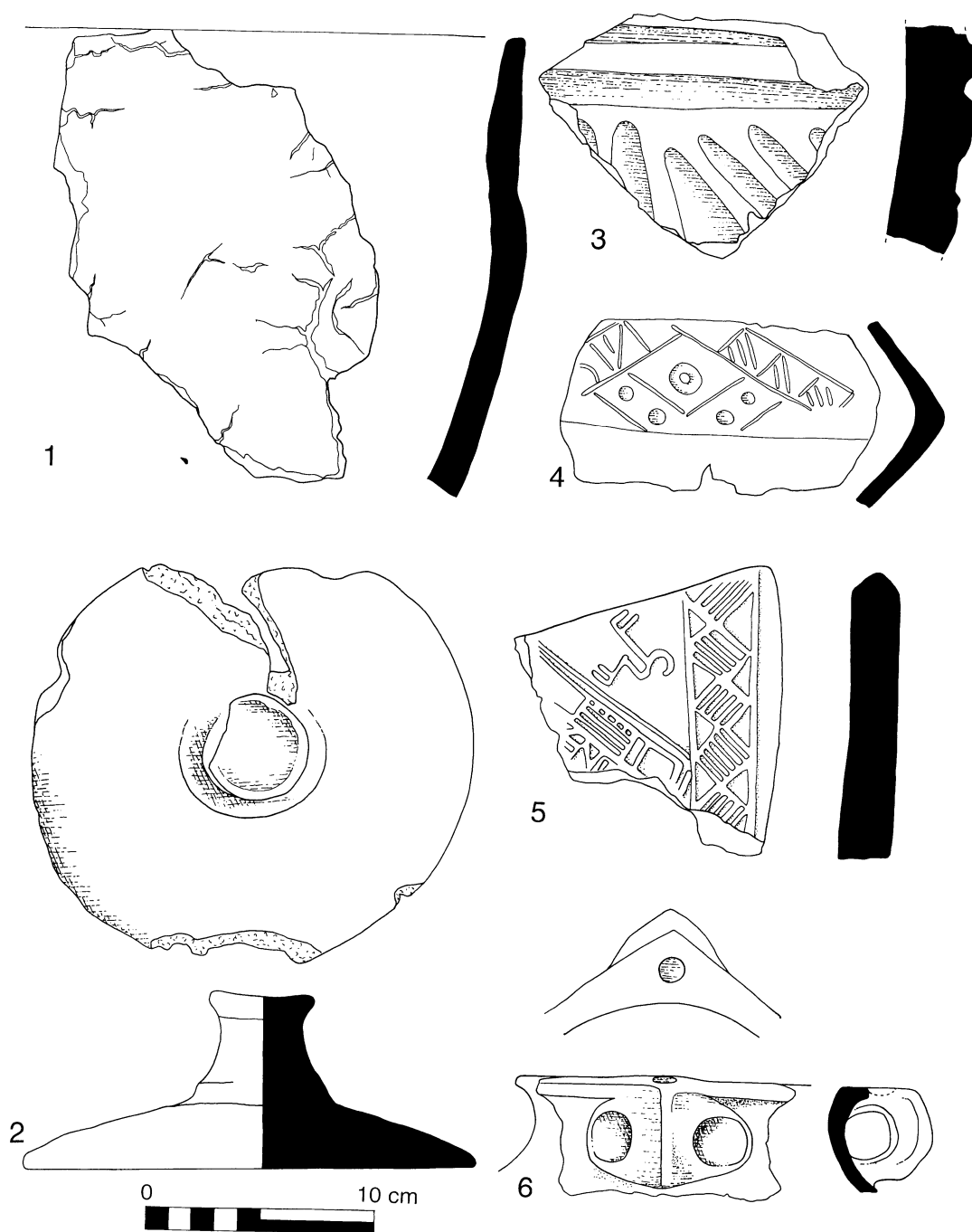


Fig. 7.

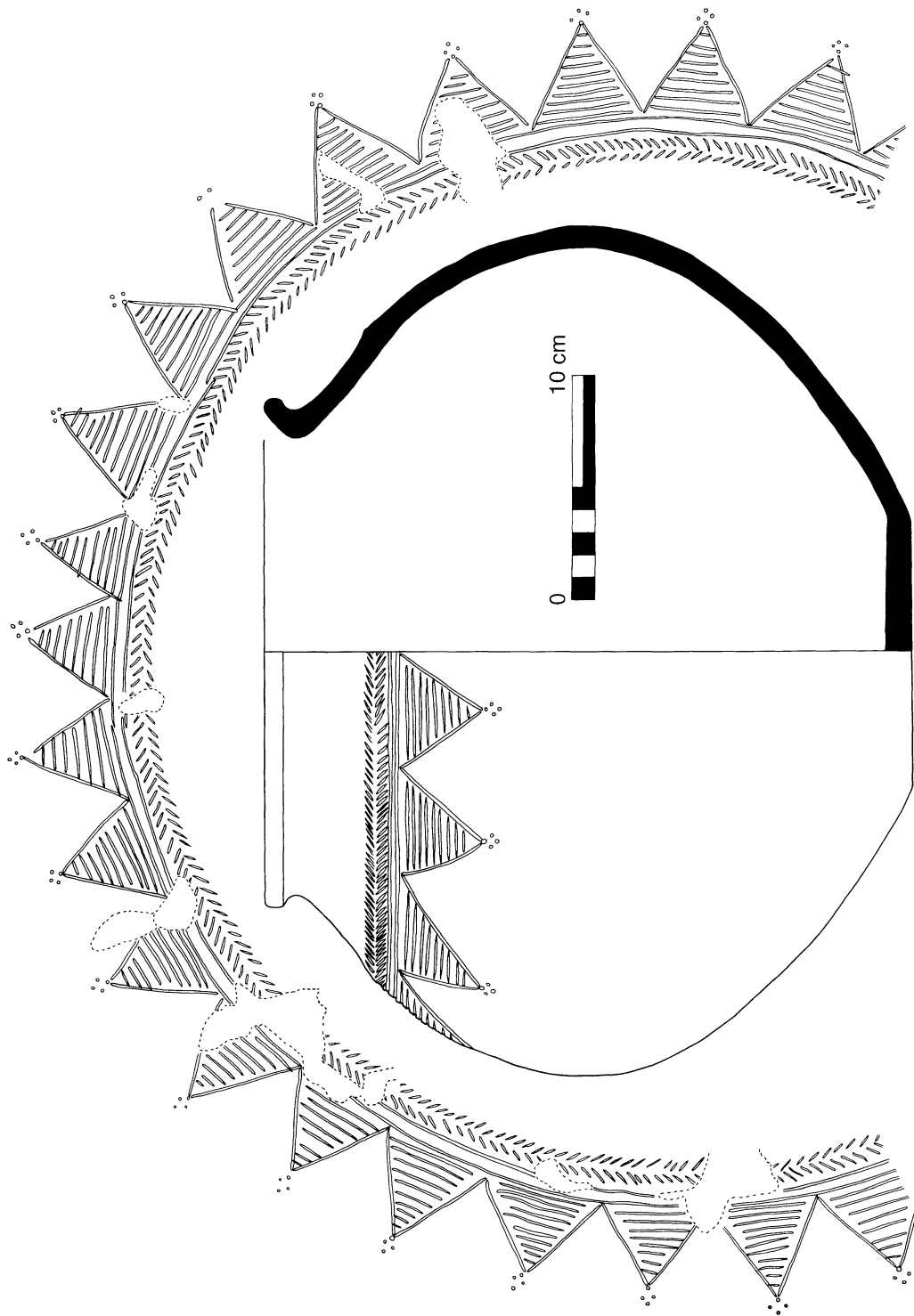
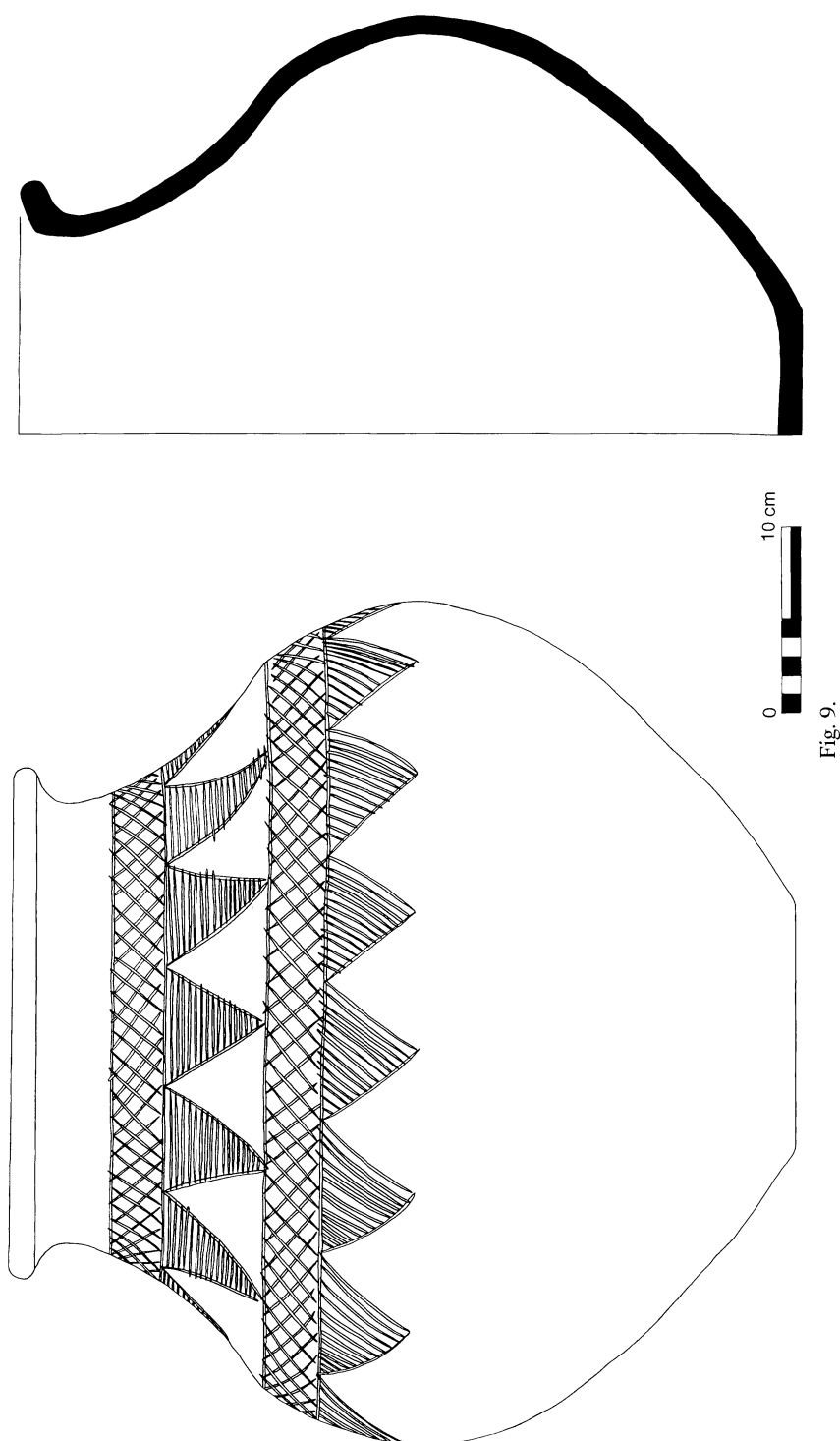


Fig. 8.



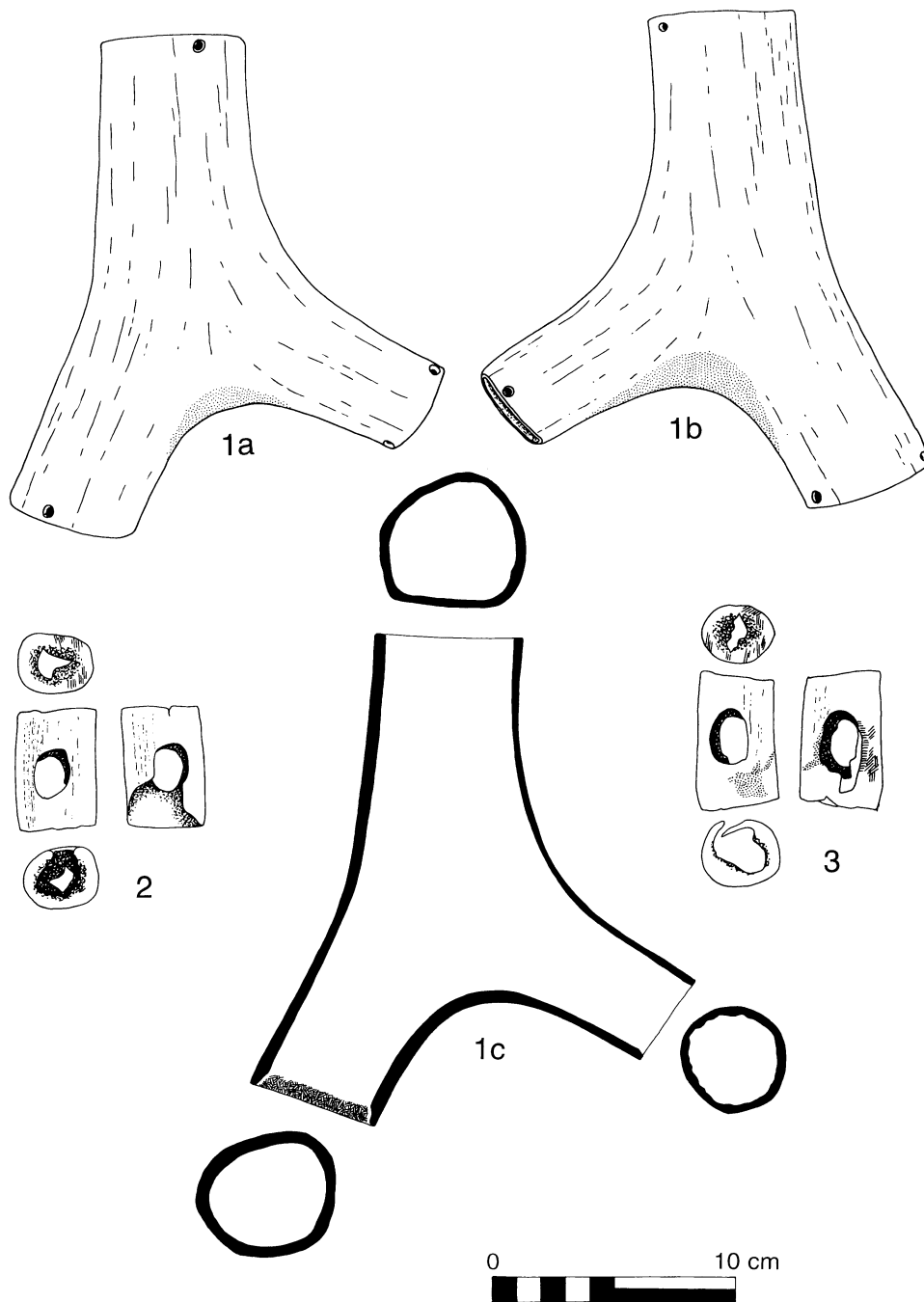


Fig. 10.

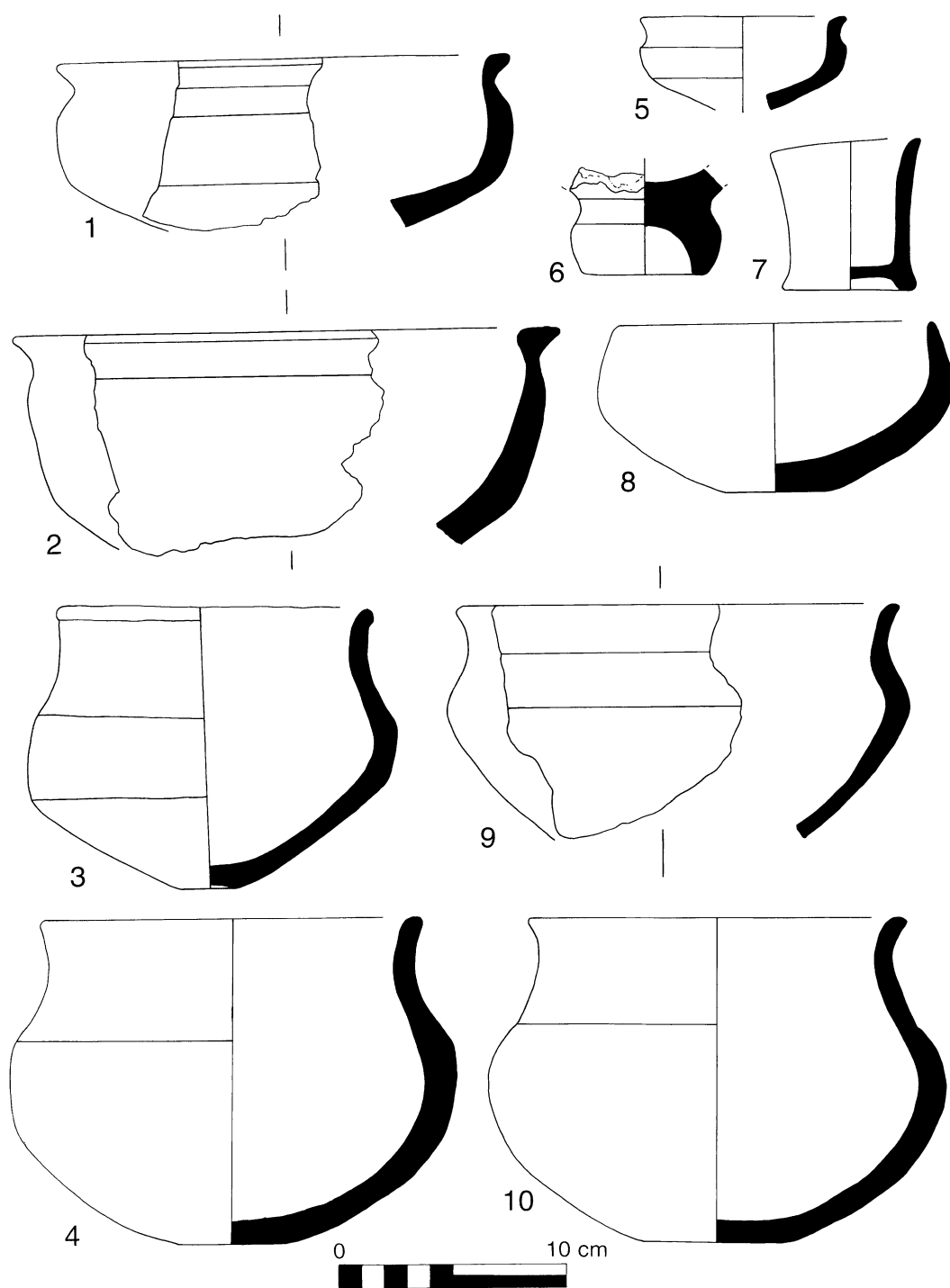


Fig. 11.

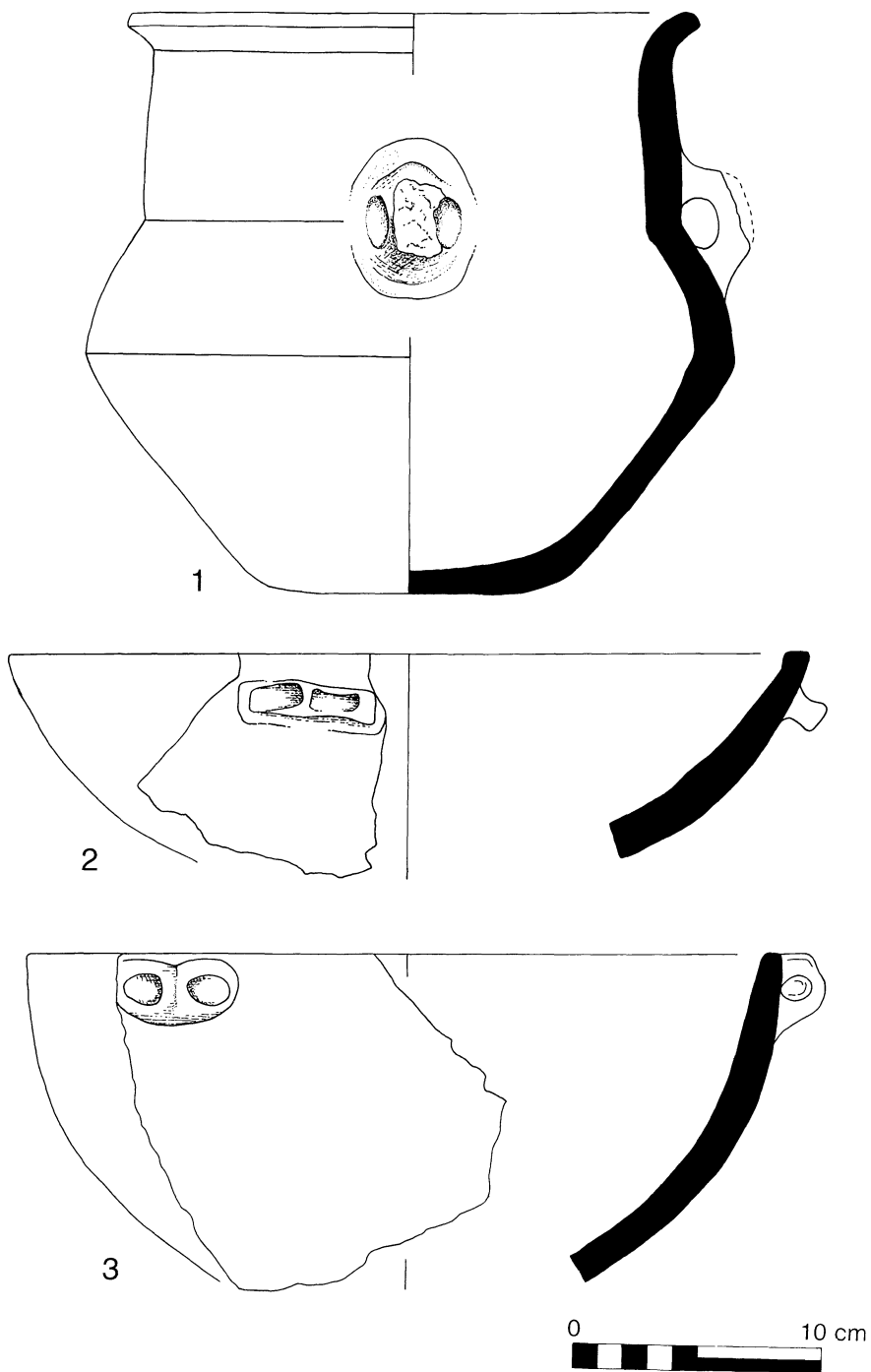


Fig. 12.

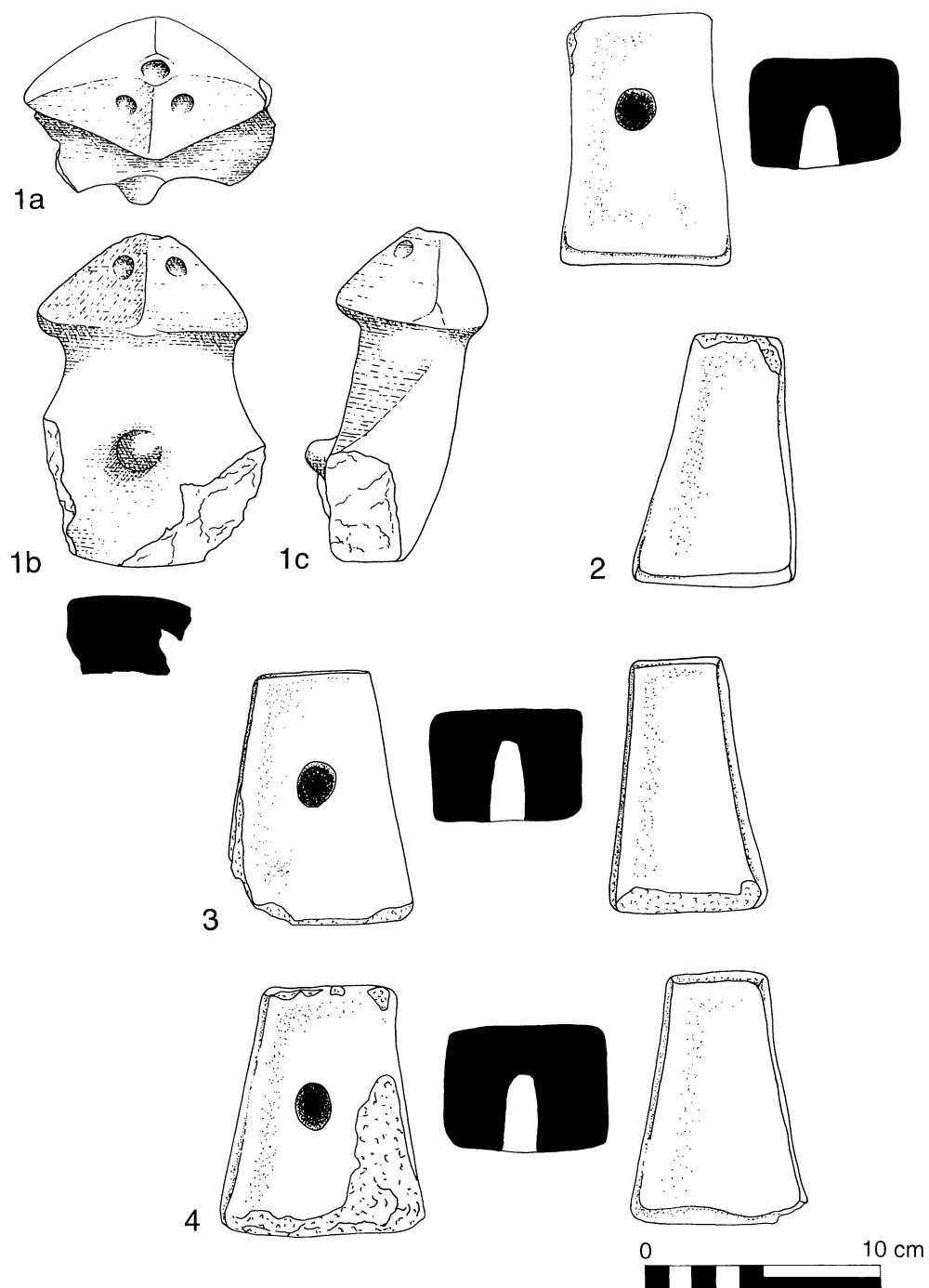


Fig. 13.

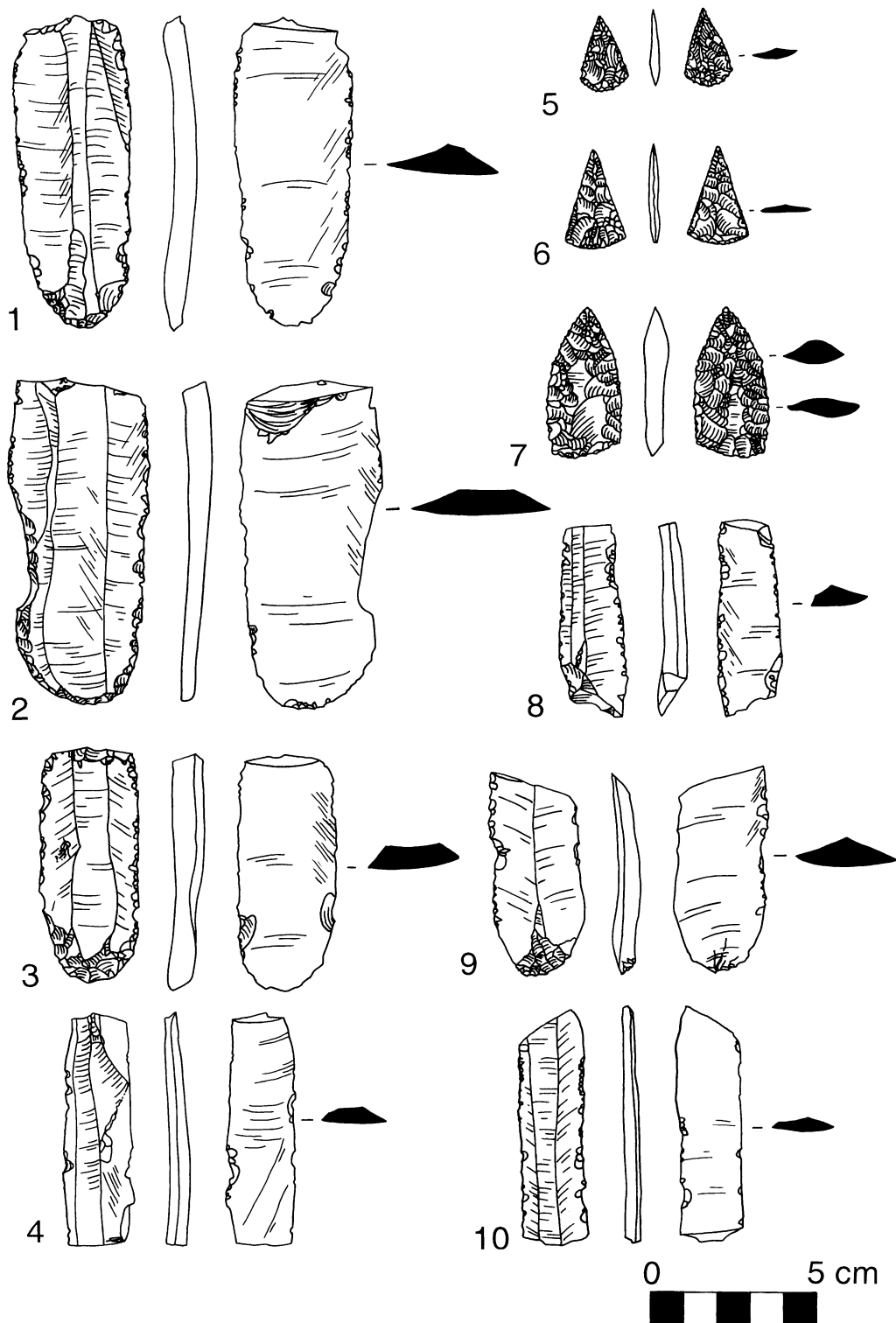


Fig. 14.

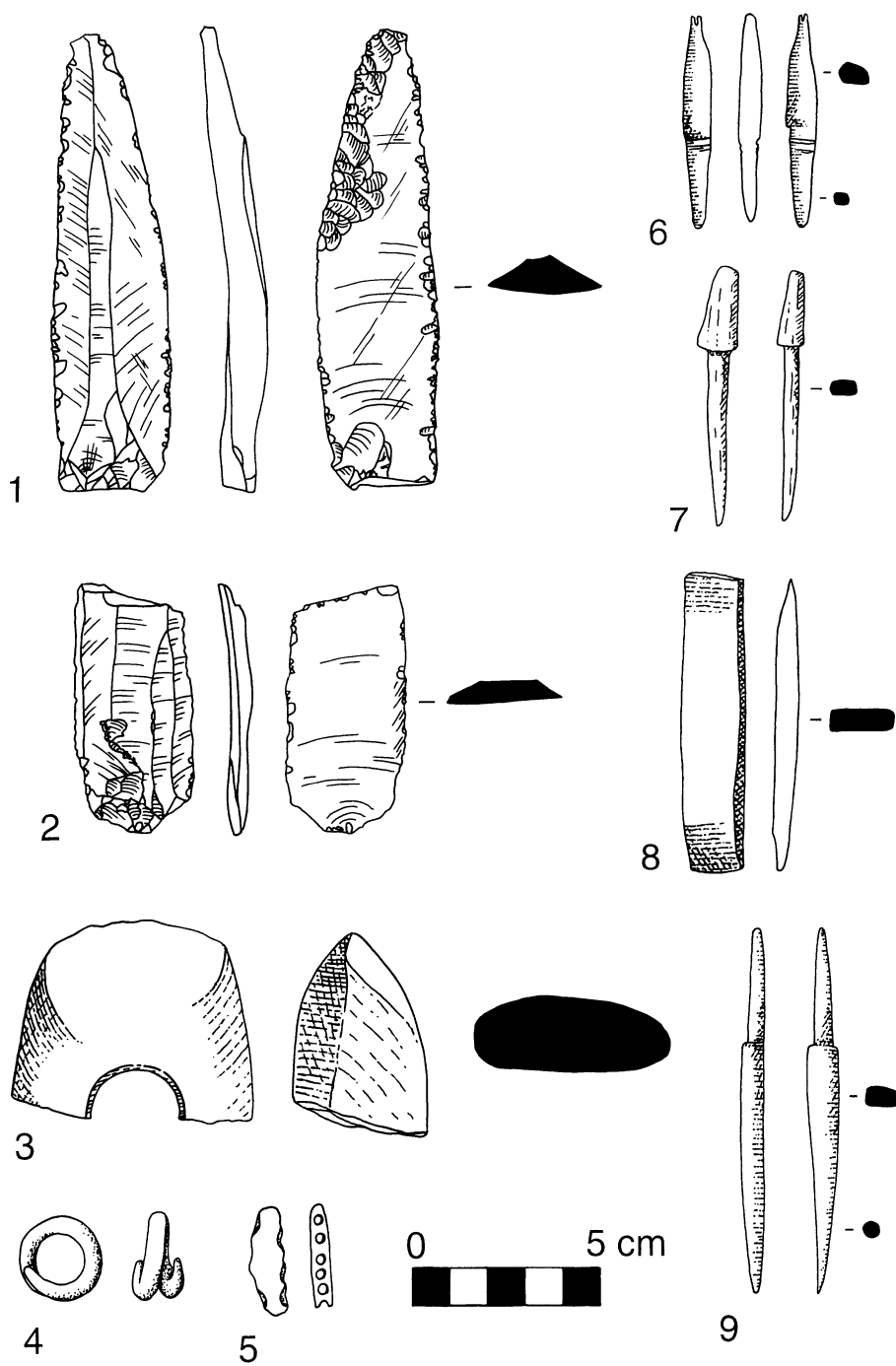


Fig. 15.

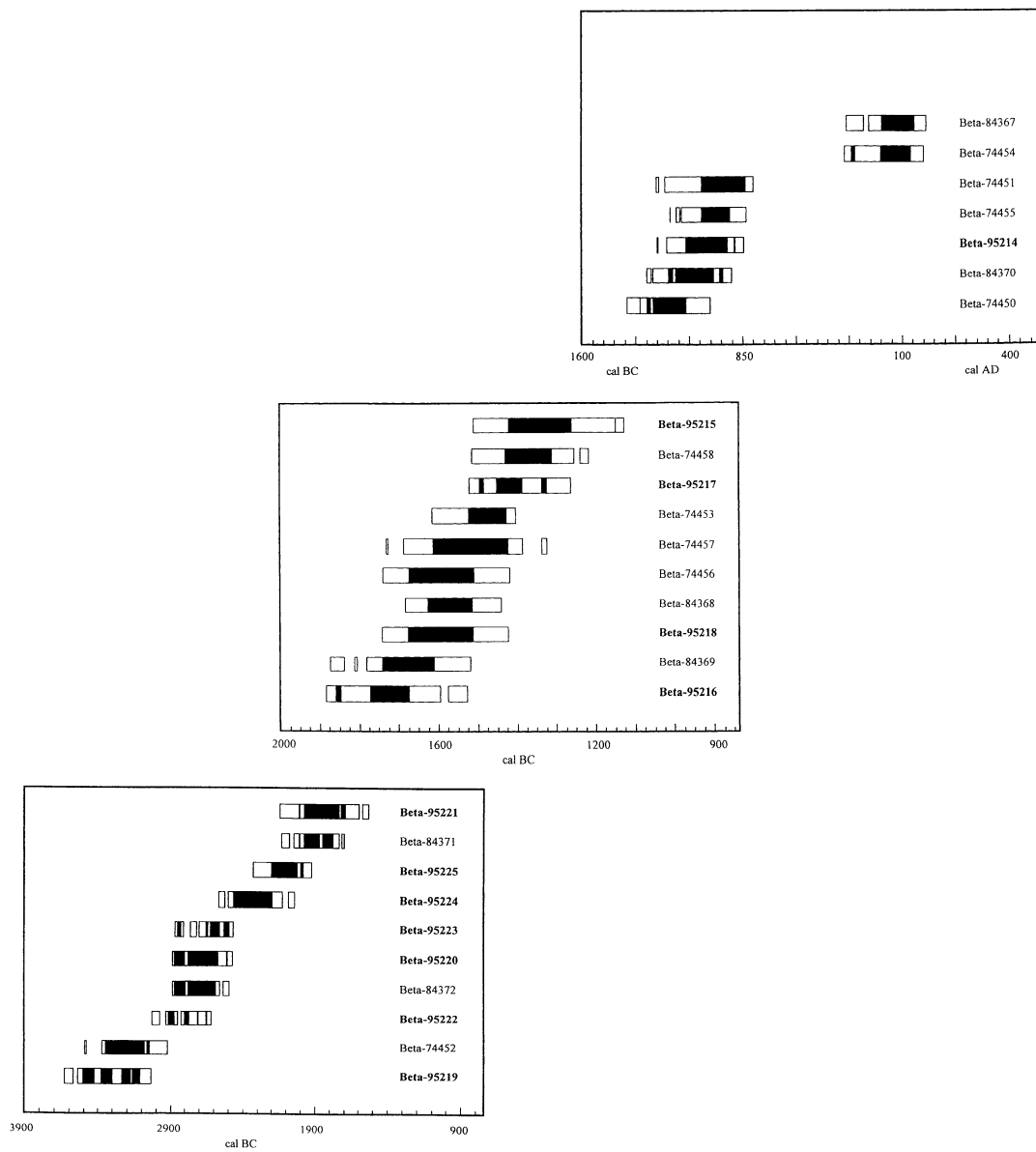


Fig. 16.

Fig. 17. Ratio Diagram of Bos Species, N=103.

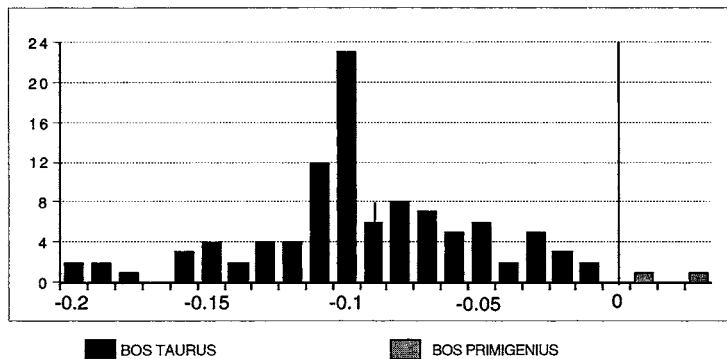


Fig. 18. Ratio Diagram: Early Bronze Age Ovis Species, N=209.

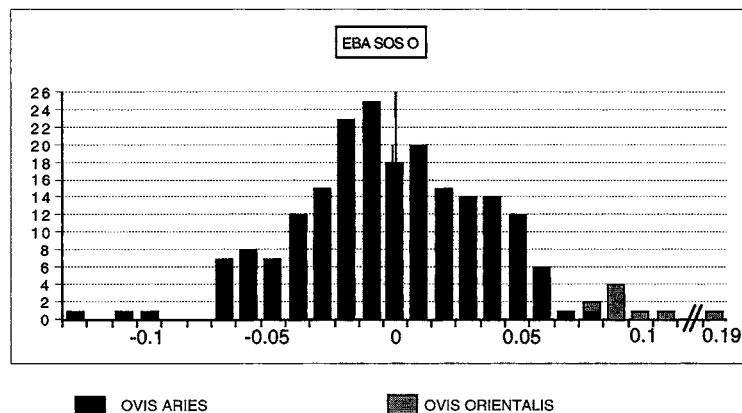


Fig. 19. Ratio Diagram: Early Bronze Age Capra Species, N=59.

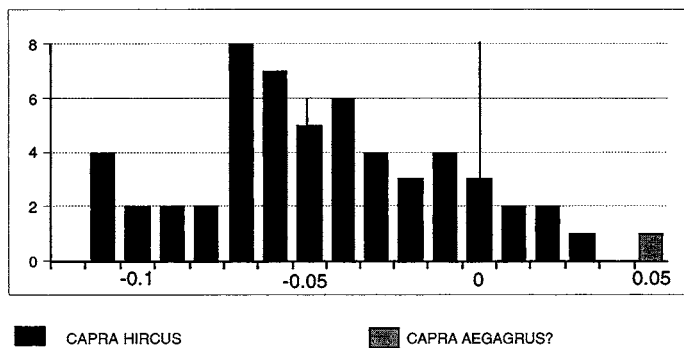


Fig. 20. Ratio Diagram: Early Bronze Age Sus Species, N=4.

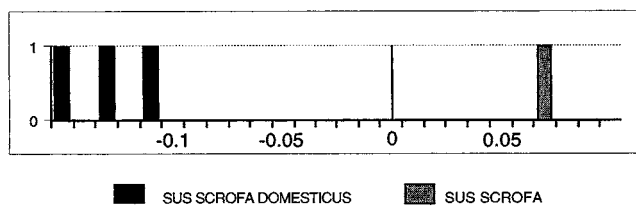




Plate 1. Summit, Late Iron Age and Post-Achaemenid. Architectural remains in Trenches K14, K15, L14, L15, M14, M15. Photographic view toward the west.



Plate 2. Trench M15d, Early Iron Age. South (left) and west (right) sections showing the pit in the thick limestone packing. The chocolate brown layer defines the base of the packing.



Plate 3. Trench M15d, Early Iron Age. Cream slipped pottery sherd embedded in crunchy, burnt limestone. Found in pit.



Plate 4. Trench M15d, Second millennium B.C. Architectural remains of a round house.



Plate 5. Trench M16, Middle Bronze Age. Burial 1. Photographic view toward the north.



Plate 6. Trench M16, Middle Bronze Age. Burial 1. Incised Trialeti like round bodied jar.



Plate 7. Trench M16, Middle Bronze Age. Burial 2. South (left) and west (right) sections with tomb shaft. The chocolate brown layer defining the transition between the Early Iron Age and second millennium B.C. occupation can be seen in the top left hand corner.



Plate 8. Trench M12, Middle Bronze Age. Burial 2. Grave goods. Antler toggles and Y-shaped object, and beads.



Plate 9. Cross section of pottery sherds found in contexts dateable to the second millenium B.C. in Trenches M15d and M16. The sherds on the left and right are Early Trans-Caucasian, the one in the centre is distinguished by its heavily gritted fabric.



Plate 10. Trench 17b, Early Bronze Age. Architectural remains of an Early Trans-Caucasian dwelling. Photographic view toward the north.



Plate 11. Trenches M16 and M17, Early Bronze Age. Architectural remains of a substantial curved wall.
Photographic view toward the east.



Plate 12. Trenches M16 and M17, Early Bronze Age. Architectural remains of a substantial curved wall.
Photographic view toward the north.

FOLLOWING THE EARLIEST HALAF: Some Later Halaf Pottery from Tell Sabi Abyad, Syria

*Olivier Nieuwenhuys*¹

Continuing archaeological investigations at Tell Sabi Abyad in the Balikh valley of Northern Syria have yielded an uninterrupted sequence for the Late Neolithic period (Akkermans 1989, 1993, LeMière and Nieuwenhuys 1996). The excavations have been concentrated on the south-eastern mound of the tell, where a continuous occupation sequence has been demonstrated leading from pre-Halaf (Balikh II) through a short-lived Transitional phase (Balikh IIIA) to the Early Halaf (Balikh IIIB). During this period, between ca. 6000 and 5800 cal.B.C., Sabi Abyad was one of the larger, central sites in the valley (Akkermans and LeMière 1992, Akkermans and Verhoeven 1995). The Balikh IIIB period is thought to precede the traditional Early Halaf of sites such as Tell Aqab or Tell Arpachiyah. After the Balikh IIIB period, occupation on this part of the mound seems to have come to an end; no younger occupation levels could thus far be demonstrated. But was the whole village deserted?

On the north-eastern mound of Tell Sabi Abyad occupation appears to have continued.² Three trenches, termed V5, W5 and X5 and excavated in 1988, have yielded Halaf strata that document the transition from Balikh IIIB to Balikh IIIC (fig.1). These trenches are small, measuring 4 by 2 metres (squares V5 and W5) and 2 by 1 metres (square X5), and have been excavated to a limited depth. In terms of excavation, the Balikh IIIC assemblage was until then only known from the soundings at Tell Damishliyya, situated some five kilometres west of Sabi Abyad. Now it has become possible to follow, on one and the same mound, the continuing ceramic developments immediately succeeding the establishment of the initial Halaf (Balikh IIIB) in the valley.

¹ National Museum of Antiquities, Leiden.

² During the first season of excavation some trenches on the top and northern slopes of the north-east mound had yielded a ceramic sequence from the Balikh II to the Balikh IIIB period (Akkermans 1987:25, 1989:19-22; 83-102). In 1988 five squares of 10 by 5m. were opened, situated directly east of the trenches excavated by Akkermans (Akkermans and LeMière 1992: fig.2). The work was under supervision of Miquel Molist and Marie LeMière. Two deep soundings were made in squares U5 and Y5. Here pre-Halaf layers were quickly reached, stratified below deposits representing the Transitional (Balikh IIIA) and Early Halaf (Balikh IIIB) periods (Akkermans and LeMière 1992, LeMière, pers. comm.). A short description of the pre-Halaf (Balikh II) pottery from these soundings has been published (Akkermans and LeMière 1992:19-21). I wish to thank Maria Trentin, Richard Spoor and Kim Duistermaat for their useful suggestions and especially Peter Akkermans and Marie LeMière for their comments and for allowing me to study the ceramics on which this contribution is based.

Square V5: Balikh IIIB

No substantial features were encountered in square V5. The only features that were excavated consisted of a fragment of a wall in the north-west part of the trench running south-west to north-east and some very shallow pits, some of which were filled with ashes. A fragment of a floor was preserved in the north-western part of the trench. The strata excavated in this narrow sounding seem to represent mostly debris layers that slope steeply down to the north and, more gently, from west to east.

In square V5 four major ware categories can be distinguished: Halaf Fine Ware, Vegetal Coarse Ware, Grey-Black Ware and Mineral Coarse Ware (for definitions of these wares see LeMière and Nieuwenhuysse 1996).³ In addition, some small fragments of Dark-Faced Burnished Ware and Red-Slipped and Burnished Ware occurred (table 1). The relative proportions of the wares correspond closely to the assemblage retrieved from levels 3-1 on the south-eastern mound of the tell, i.e. the Balikh IIIB period.

The assemblage consists largely of Halaf Fine Ware. Only two rims are undecorated; the remainder is painted. Those rim fragments that can be classified under a specific vessel shape, are mostly jar fragments (n=43), followed in number by bowls (n=30). Only two hole-mouth pots were found. The jars all fall into a rather heterogeneous group of angle-necked jars. These mostly have straight necks, either vertical (n=11) or everted (n=11). Jars with concave necks are much less common (n=13). The bowls show the common repertoire of the Balikh IIIB assemblage including simple bowls with rounded contours (n=8), a few examples of flat-based straight-sided bowls (n=6), including a miniature example (fig.3:1-4, 13), and three carinated bowls with straight wall (fig.3:5). Characteristic shapes are the low, carinated bowls with concave sides (n=8, fig.3:7-8) and small cream bowls (n=5, fig.3:9), both always decorated with horizontal crosshatching. The decoration of these Fine Ware vessels is similar to that observed in levels 3-1 on the south-eastern mound of the site. The emphasis is on horizontal, bounded designs with geometric patterns. Characteristic design motifs include horizontal crosshatching, crosshatched lozenges, or crosshatched triangles. The crude stepped patterns (fig.3:11) are characteristic for the Balikh IIIB period (LeMière and Nieuwenhuysse 1996).

Vegetal Coarse Ware vessels make up about 13% of all rim sherds (table 1). These vessels are never decorated but traces of burnishing were found on two rim fragments and one base. Vessel shapes include large, thick-walled plain-rim bowls (n=12) and some jars with vertical neck (n=4). Besides these two main ware categories, the assemblage includes small proportions of Mineral Coarse Ware and Grey-Black Ware. Mineral Ware is a highly specialised type of pottery well suited to the use on fire for cooking (LeMière and Picon 1991). This category includes about 6% of all rim sherds from square V5 (table 1). These vessels are never decorated but in all cases show burnished surfaces. All vessels are of the hole-mouth type, often with rims bevelling inwards. Finally, Grey-Black Ware includes about 4% of the rim sherds. Grey-Black Ware is characterised by its dark-grey to black and usually burnished surface. The few shapes represented

³ The present distinctions between the various ware categories (see LeMière and Nieuwenhuysse 1996) have been made subsequent to earlier publications on the Halaf ceramics from the Balikh valley (Akkermans, 1988, 1989, 1993) and modify those used in previous publications to some extent.

are small, thin-walled jars and a small, closed rounded bowl; the latter shows a pattern-burnished decoration (fig.3:15).

Squares W5 & X5: Balikh IIIC

In square W5 a massive wall was found, running north-east to south-west in the north-western part of the trench. The wall appears to have consisted of bricks, with a width of approximately 40 cm. The wall was still standing to a height of over one metre (Akkermans and LeMière 1992). In association with this wall some floor levels were encountered. Square X5, excavated to a limited depth, did not yield any features. It can be suggested that in Halaf times the architecture was dug into the slopes of the Late Neolithic mound. In this way it would have resulted in some sort of terraced construction, conveniently providing horizontal floor levels. Similar terrace building has been found on the south-eastern mound of Sabi Abyad (Verhoeven and Kranendonk 1996). Apparently, Halaf occupation on this part of the mound had spread out along the slopes of the pre-Halaf mound (cf. Akkermans 1989:18).

In addition to Halaf Fine Ware the ceramic assemblage includes Mineral Coarse Ware and Grey-Black Ware. Only a handful of Vegetal Coarse Ware body sherds was found (table 1). Between 81 and 88% of the assemblage consists of Halaf Fine Ware. The composition of the clay is microscopically similar to that of the pottery from square V5. The vessels show lightly coloured, carefully smoothed surfaces. A single Fine Ware fragment showed tracing of burnishing. A small proportion (about 4% of all Fine Ware sherds) is overfired, suggesting that Fine Ware pottery was still being produced at Sabi Abyad during the Balikh IIIC period. All rim fragments except one are painted. Paint colours are mostly dark, most often black or brown (70 and 21% of all painted sherds resp.).

A marked contrast with the Fine Ware pottery from square V5 is the gloss of the paint. Whereas in square V5 only less than half of all painted sherds showed a lustrous paint, about 89% of all painted sherds from squares W5 and X5 show a lustrous paint. Thus, the trenches document the technological transition from the predominantly mat painting techniques of the pre-Halaf era to the gloss painting which is characteristic for the Early Halaf period.

The few reconstructable vessels include bowls (n=21) and jars (n=19), on the basis of rim sherds. Most vessels have plain, simple rims, but occasionally the rim is more elaborated, as is the case with some vessels with flat rims (n=2). Special attention is drawn to some vessels with short, everted rims (n=6, see fig.4:11-12, fig.6:5); such rims seem to be confined to the Balikh IIIC period. One fragment showed a pierced knob (fig.6:17). Among the bowls, collared ones are characteristic. These include cream bowls with rounded bases (n=10). Their profiles are similar to those of the Balikh IIIB cream bowls but the vessels are larger with rim diameters between 16 and 28cm. Whereas the Balikh IIIB cream bowls are almost exclusively painted with horizontal crosshatching, the surfaces of these larger cream bowls are often painted solidly or with horizontal lines (fig.4:1-8). In addition, three examples were found of a cream bowl with sharply carinated, flat base; two neck fragments may perhaps represent the same vessel shape (fig.4:9-12). Interestingly, the cream bowls with flat base are paralleled by similar vessels from the Early Halaf levels at Arpachiyah (Mallowan and Rose, 1935: fig.62:1; Hijara 1980:102-103, Pl.XX-XXII) or Aqab (Davidson 1977). In addition, four rim fragments of wide, rounded bowls with short, everted rims (fig.5:1-3) and three rounded bowls with everted walls (fig.4:13-15)

were found. Flat-based, straight-sided bowls are represented by a single reconstructable example and a base fragment (fig.5:4).

Most jars fall into a group of small to medium-sized angle-necked jars. These have mostly concave, everted necks (n=9). Straight necks are less common, either everted (n=4) or vertical (n=1). The rim diameter varies between 7 and 20cm, with the height of the neck ranging from 2cm to 8cm. Most interesting are some angle-necked jars with oval orifices (n=2, but in addition two body fragments were found fig.5:5-8). Oval mouths are common during the pre-Halaf and occur occasionally during the Early Halaf or Balikh IIIB period, but never with Fine Ware vessels. Few good parallels can be found. During a survey of prehistoric sites in the Balikh valley, some similar oval-necked Halaf jars were found at Tell Damishliyya, Tell Mounbati^c, Tell Quardana and Tell Hammam et-Turkman, all of which were occupied during the Balikh IIIC period (Maria Trentin pers.comm., Akkermans 1993:193). Some more examples were found at Sabi Abyad in secondary contexts (see below), in association with Balikh IIIC pottery. Outside the valley, some oval-shaped Halaf bowls were found at Tell Arpachiyah and dated to 'probably' TT 7-8 (Mallowan and Rose 1935:136, 152, fig.65:4 & fig.69:2). A zoomorphic vessel from the lower levels of Yarim Tepe II has an oval mouth (Merpert, Munchaev and Bader 1981:fig.VIII). The best parallel attested thus far is a jar with an oval neck from Arpachiyah dated to the pre-TT-10 levels, the Early Halaf period (Mallowan and Rose 1935:fig.59:7).

Finally, special attention is drawn to a unique Fine Ware jar of remarkable size (fig.7:15). The vessel shows a globular body and a vertical, slightly concave neck with a flattened rim. The rim diameter of this jar measures 40 cm; the total height of the vessel may have been over 45 cm. Besides its size, the vessel is distinguished by its naturalistic decoration, which shows a row of male capricorns.

In many respects, the painted decoration of the ceramics from W5 and X5 is similar to that of the Balikh IIIB period.⁴ Large areas of the vessel surface (the neck, the body) are treated as a single zone for decoration, although some vessels show a more complicated design. The emphasis is on bounded, geometric patterns in horizontal, continuous zones. Notable exceptions in this respect are represented by a bowl painted with small, 'free-floating' circles (fig.5:12) and by some vessels with panelled decoration ('metopes': fig.5:6,13; fig.6:18). Many common motifs are the same as during the Balikh IIIB period, such as horizontal crosshatching, crosshatched lozenges, or solid horizontal triangles.

At the same time the differences with the Balikh IIIB style of decoration are clear. Perhaps the most notable difference in decoration can be seen in the use and the rendering of horizontal, structural lines. Compared to the Balikh IIIB period, the use of horizontal 'optional' lines⁵ is on the increase. More significantly, the horizontal bands on the rim, the neck and the body carination become much thicker, leaving less space between them. Often a whole neck or a large part of the vessel surface is painted solidly. Some new motifs are introduced, such as vertical bars (fig.6:15), chevrons (fig.4:15) and dots on a horizontal line (fig.6:16; fig.7:2)⁶. A characteristic design

⁴ Some Balikh IIIC vessels from the north-east mound have as a matter of fact been included with the examples illustrating the Balikh IIIB period (cf. Akkermans 1993:fig.3.22:44,45 & 50).

⁵ 'Optional' lines are horizontal lines added to the design that are unrelated to any particular design motif.

⁶ In fact, these design motifs were re-introduced. They are commonly found during the Balikh IIIA period, and disappear during the Balikh IIIB period (LeMière and Nieuwenhuyse 1996).

is a small band of horizontal crosshatching in between thick, broad lines (fig.4:5, 8, 9; fig.5:14). Naturalistic, tree-like designs seem relatively common when compared to the Balikh IIIB period (fig.5:13; fig.7:11). The decoration corresponds closest to the painted Balikh IIIC pottery from Tell Damishliyya, but further east an emphasis on thick, horizontal lines and bounded decoration zones is also seen in the Early Halaf assemblages of sites like Aqab (Davidson 1977:111-114) and Arpachiyah (Mallowan and Rose 1935, Hijara 1980).

Besides Halaf Fine Ware, the assemblage consists of Mineral Coarse Ware and Grey-Black Ware to the extent of 10 to 19% (tabel 1). The clay composition of the Mineral Coarse Ware and its surface treatment are similar to those of sherds from square V5 but perhaps a small shift in firing techniques can be detected. Whereas in square V5 most Mineral Coarse Ware sherds show dark, incompletely oxidized sections, Mineral Coarse Ware sherds appear more completely oxidized in squares W5 and X5, showing brown cores and brown, burnished surfaces. Most vessels are hole-mouth pots (n=6), often with bevelled rim (fig.8:1-2). A single example of a hole-mouth jar (fig.8:3) was found (cf. Akkermans 1988: fig.3.7:Pl.16:120-122)⁷. Surprising perhaps is the small proportion of Grey-Black Ware, including between 3 and 9% of the assemblage. Thus far, it was thought that the Grey-Black Ware tradition largely belonged to the pre-Halaf period. The few shapes include a large straight-sided bowl and two miniature straight-sided bowls as well as two small jars (fig.8:4-6).

The near absence of Vegetal Coarse Ware is somewhat puzzling, for at Tell Damishliyya about 16% of the assemblage includes Coarse Ware which, besides sherds with mineral inclusions, mostly includes sherds with vegetal temper. Along with the small size of the present sample, chronological differences may be at work. At Damishliyya, Akkermans noted some chronological variation between the various pits from which the Halaf pottery was recovered (1988:31-33); the vessel-tempered Coarse Ware was mainly found in one pit. Alternatively, it may be speculated that social or functional reasons account for the difference between the two sites. At present, however, this would be difficult to evaluate.

Although the Balikh IIIC assemblage from W5/X5 fits well within the regional sequence for the Halaf period, it is still difficult to establish strong links with sites in other regions in northern Mesopotamia. It could be argued that the Balikh IIIC assemblage represents a regionally bounded 'Balikh' style. Contrasting with this view, however, are some sites with Balikh IIIC-like ceramics that have recently been detected in the Khabur headwaters (Lyonnet 1992, Nieuwenhuys in press). As Peter Akkermans pointed out (1993:135), the Balikh IIIC pottery shows resemblances to both the Early Halaf and the Middle Halaf phases of sites elsewhere. Recently, Stuart Campbell (1992) has distinguished more formally between the Sabi Abyad-like Early Halaf, which he termed Halaf Ia, and the traditional Early Halaf, which he called Halaf Ib. The ceramics recovered from the north-eastern mound suggest that the Balikh IIIC assemblage is at least partly contemporary with what is traditionally seen as Early Halaf in other regions, which would be Halaf Ib in Campbell's terminology. This supports the interpretation that the earliest Halaf at Sabi Abyad (i.e. the Balikh IIIB assemblage) does indeed represent a separate stage in Mesopotamian prehistory,

⁷ Peter Akkermans distinguished between Fine Ware and Coarse Ware at Tell Damishliyya. However, following the subsequent work at Tell Sabi Abyad it became clear that the category of Coarse Ware at Damishliyya contains both Vegetal Coarse Ware and Mineral Coarse Ware.

and is not just a regional peculiarity of northern Syria (contra Gut 1995:215, 218). This is further supported by recent survey work, which shows beyond doubt that the Balikh IIIB pottery had a very wide distribution across the dry-farming belt of northern Mesopotamia (cf. Campbell 1992, Wilkinson and Tucker 1995, Nieuwenhuyse in press).

There is a single radiocarbon date from the Halaf levels on the north-east mound (UtC 1010, from square V5, 1.35m below the surface) of 6670 ± 100 BP, or around 5500 cal. BC. Akkermans (1993:116) already expressed his doubts concerning this date and as the associated material is Balikh IIIB, it can indeed safely be rejected as being too young. Radiocarbon dates from better stratified Balikh IIIB levels on the south-east mound give a date of around 5900 cal. B.C. for the Balikh IIIB period (ibid.:116). Thus, at present no radiocarbon dates exist for the Balikh IIIC period. Recent radiocarbon dates from the Balikh IIID period at Khirbet esh-Shenef, however, may provide a *terminus ante quem* for the Balikh IIIC period. These give dates of 6840 ± 80 (UtC 2187), 6740 ± 80 (UtC 2188) and 6790 ± 90 (UtC 2189) B.P. (Akkermans and Wittmann 1993:161), and suggest a general date of around 5550-5700 calibrated B.C. for the Balikh IIID period (Stuiver et al. 1993). If these dates are correct, the Balikh IIIC period may have covered a short time span. The Balikh IIIC period may then perhaps be dated rather early, around 5800 cal. B.C., which seems in agreement with the technological and stylistic ceramic similarities between the two periods.

In a wider perspective, we may say that the ceramics from the north-east mound record the continuation of a process that started with the first introduction of Halaf-like Fine Ware ceramics in the 'burnt village' of level 6 on the south-eastern mound of Tell Sabi Abyad. The end of the Transitional period (Balikh IIIA) and the beginning of the Halaf (Balikh IIIB) is marked by the appearance of Halaf vessel shapes and decoration. The transition, however, must be seen as a gradual and continuous evolution. This process is characterised by a progressive increase of Fine Ware (fig.2). Associated with these technological changes is an ever-growing stylistic elaboration of vessel shape and decoration.

Some Small Finds

In addition to ceramics, a small number of stone and bone objects were recovered from the three trenches, testifying to the domestic character of the occupation. Square V5 yielded two fragments of bone awls (fig.9:8,9) as well as some grinding implements, including a mortar, a grinding slab and two pestles (fig.9:4-6). Squares W5/X5 yielded similar grinding implements and a bone fragment with a lightly polished surface and regular, linear incisions (fig.9:1-3, 7). The stone tools are all made of dark-grey, fine-grained basalt (cf. Collet and Spoor 1996).

The Fate of a Halaf Village

In addition to the material from the small soundings discussed above, a large amount of Balikh IIIC pottery was found elsewhere on the site (Akkermans 1993:155), but not *in situ*. It has recently become clear that the whole western part of the prehistoric tell is covered by a large fortified settlement from the Late Bronze Age (Akkermans, Limpens and Spoor 1993). Bricks including abundant numbers of Balikh IIIC sherds were used for the construction of most of the Late Bronze Age settlements, including the fortress on top of the mound, the architecture

surrounding the fortress, and the domestic quarters on the south-eastern slopes of the mound. Prehistoric material is found in bricks from all Bronze Age occupation phases. The state of preservation of the sherds is remarkably good, and the amount of prehistoric sherds included in the bricks runs into the thousands. A complete Halaf jar was found *in situ* on the floor of one of the rooms of the Late Bronze Age settlement (fig.8:9), amidst a Middle Assyrian domestic assemblage. The painted vessel may have been kept out of sheer curiosity.

Settlement debris is often preferred over clean, alluvial soil for the making of mud bricks (Oates 1990:389, Moorey 1994:305). Such debris is considered easier to work with, and even today the villagers prefer to extract their mud-brick material from the foot of a tell. Evidently, at Sabi Abyad the making of bricks during the Late Bronze Age resulted in the large-scale destruction of well-preserved primary deposits. In terms of tell formation processes, this caused a lateral replacement of considerable amounts of prehistoric ceramics over an area of more than 2 hectares.

The majority of the sherds recovered from the bricks belong to the Balikh IIIC period, including some rims with oval mouths (fig.8:7-8, 10-13). Interestingly, a few sherds are representative of the final stage of the Halaf in the valley, the Balikh IIID period (fig.8:14-21). This stage has thus far not been attested on the mound in a stratified context. The nearest Halaf site known is the mound of BS 192, which was occupied during the Balikh IIID period (Akkermans 1993:155). It is possible that the Bronze Age villagers went to this mound to make their bricks, but this seems unlikely considering the distance and the large amounts of heavy bricks involved. Closer to the village itself, the eastern part of Tell Sabi Abyad would have represented the most likely location for the making of bricks during the Late Bronze Age, since the western part was occupied. Some large Bronze Age pits have been found during excavation on the south-eastern edge of the tell which may perhaps have resulted from the production of bricks. If all or most of the bricks were made from prehistoric deposits at Tell Sabi Abyad itself, then there must have been a Balikh IIIC settlement of some size, perhaps similar to the Balikh IIIB village (about 2 ha.). As a matter of fact, during the first season of excavation some material was excavated from the topmost strata on both eastern mounds that would fit well within the Balikh IIIC assemblage discussed here (for the north-eastern mound cf. Akkermans 1989:194-195, nos. 200 & 204; for the south-eastern mound cf. Akkermans 1989:193-194, nos. 195, 199 & 201).

We will probably never know the true extent of the later Halaf village at Sabi Abyad following the Balikh IIIB period; a small corner on the north-east mound may be the only location where remains from the Balikh IIIC period have been preserved *in situ*. During the Balikh IIIC or, at the latest, the Balikh IIID period, at around 5600 cal. B.C., occupation ended. After more than a thousand years of habitation the site was deserted for millennia to come.

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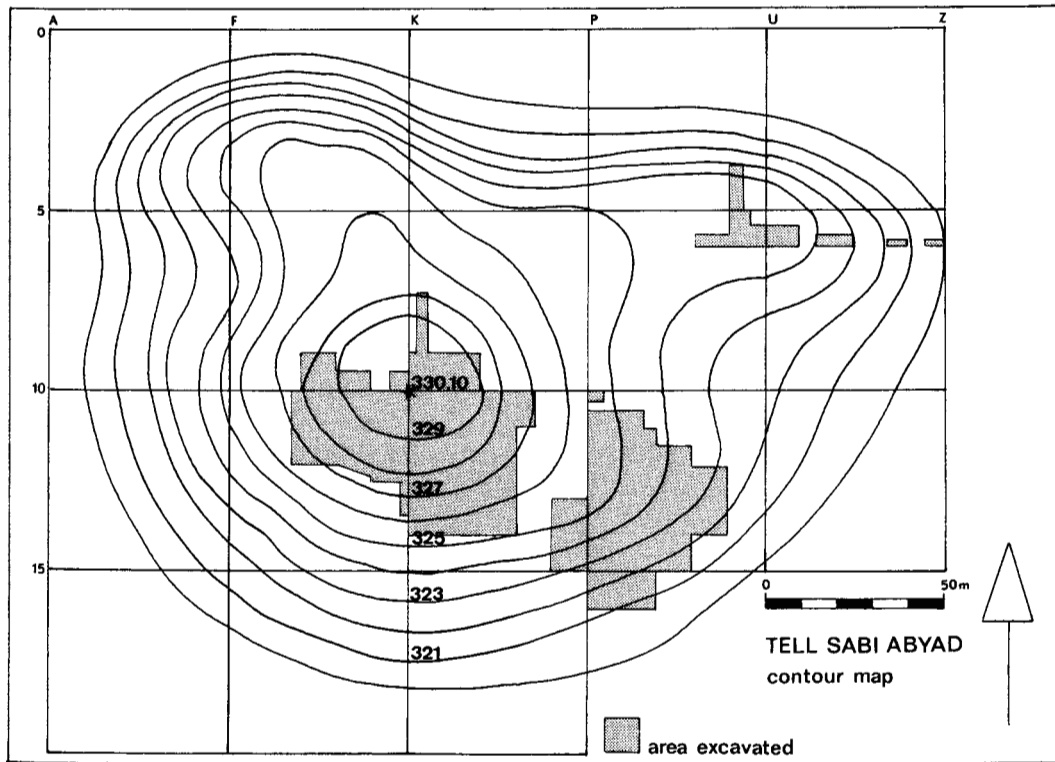
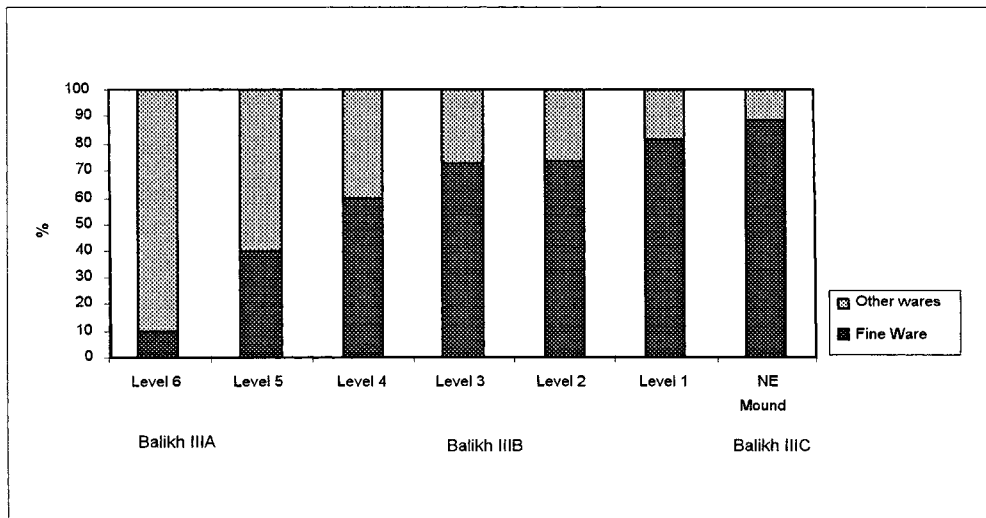


Fig. 1. Tell Sabi Abyad: location of trenches.

Fig. 2. Tell Sabi Abyad: the increase of Fine Ware from *Balikh IIIA* to *Balikh IIIC*.

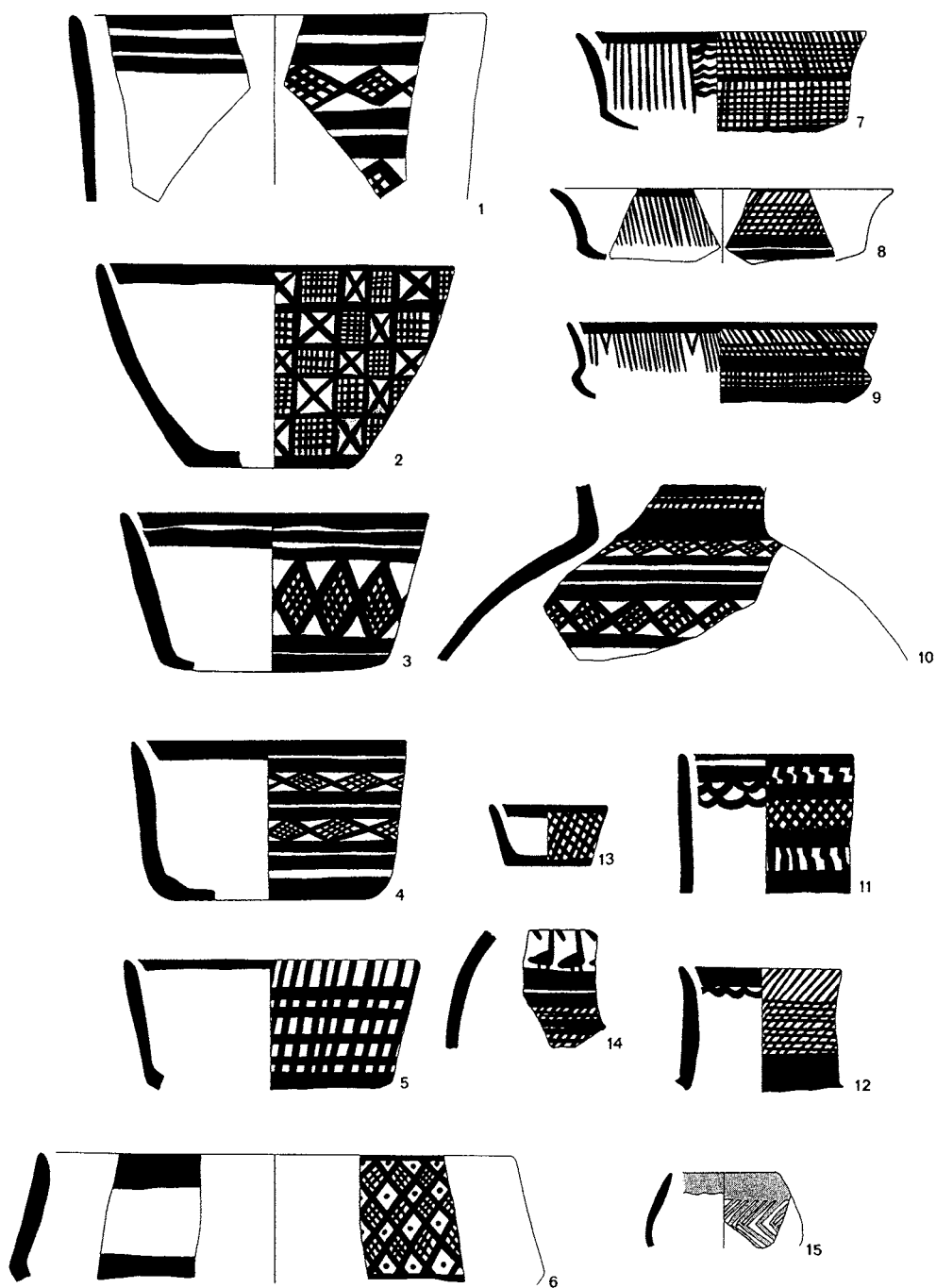


Fig. 3. Square V5. Balikh IIIB. Halaf Fine Ware. Nos 1-14; Grey-Black Ware: no. 15. Scale 1:3.

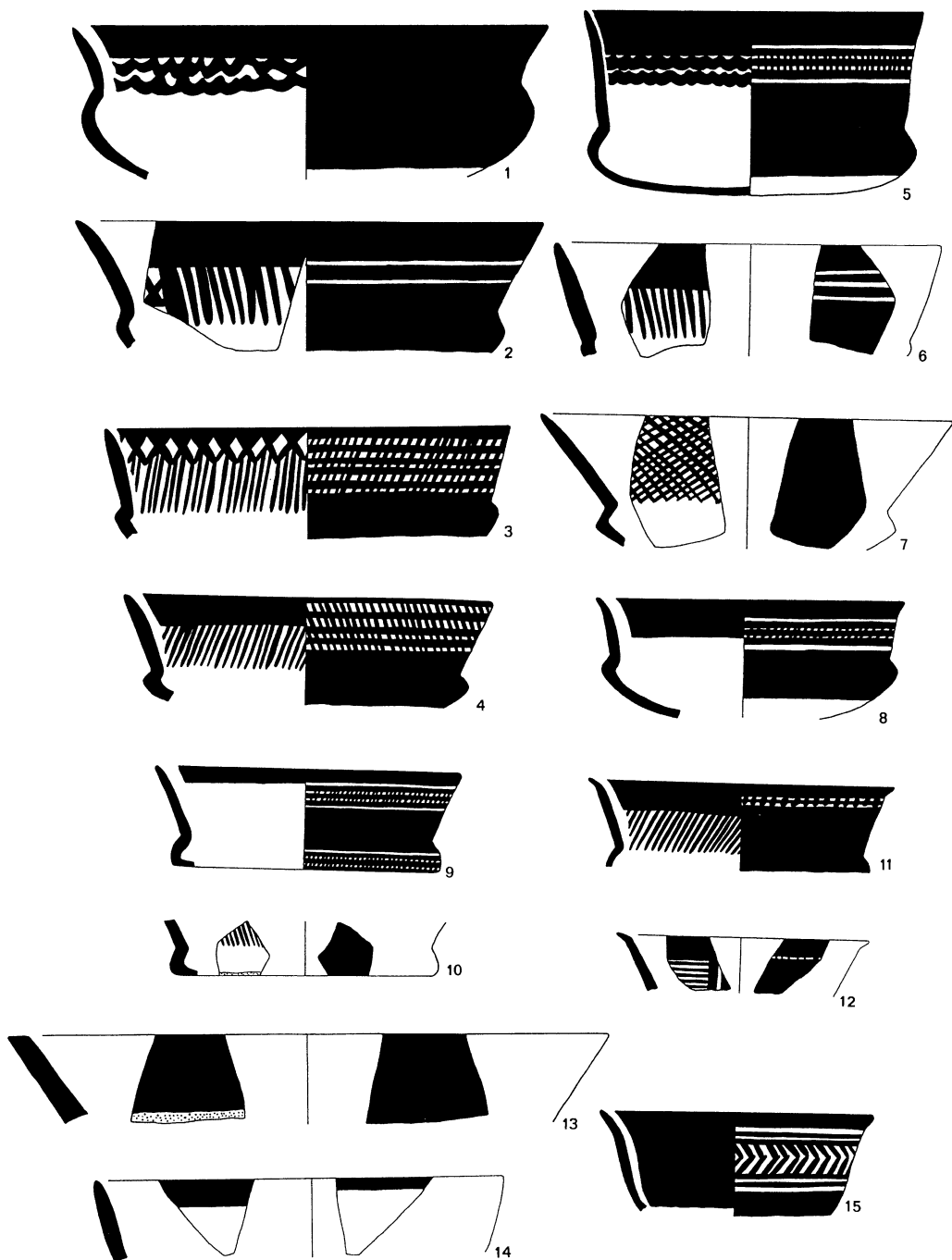


Fig. 4. Square W5/X5. Balikh IIIC. Halaf Fine Ware. Scale 1:3.

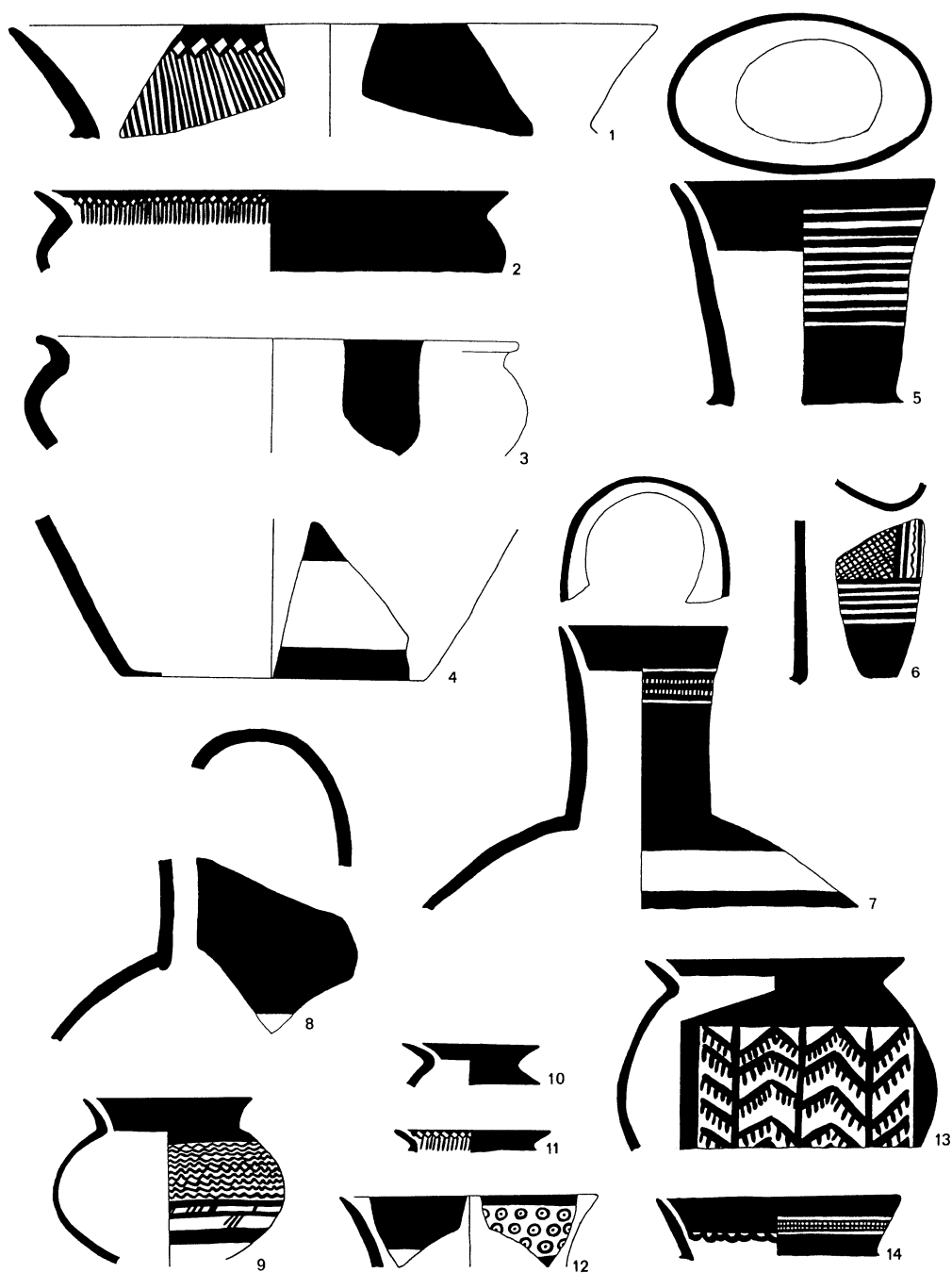


Fig. 5. Square W5/X5. Balikh IIIC. Halaf Fine Ware. Scale 1:3.

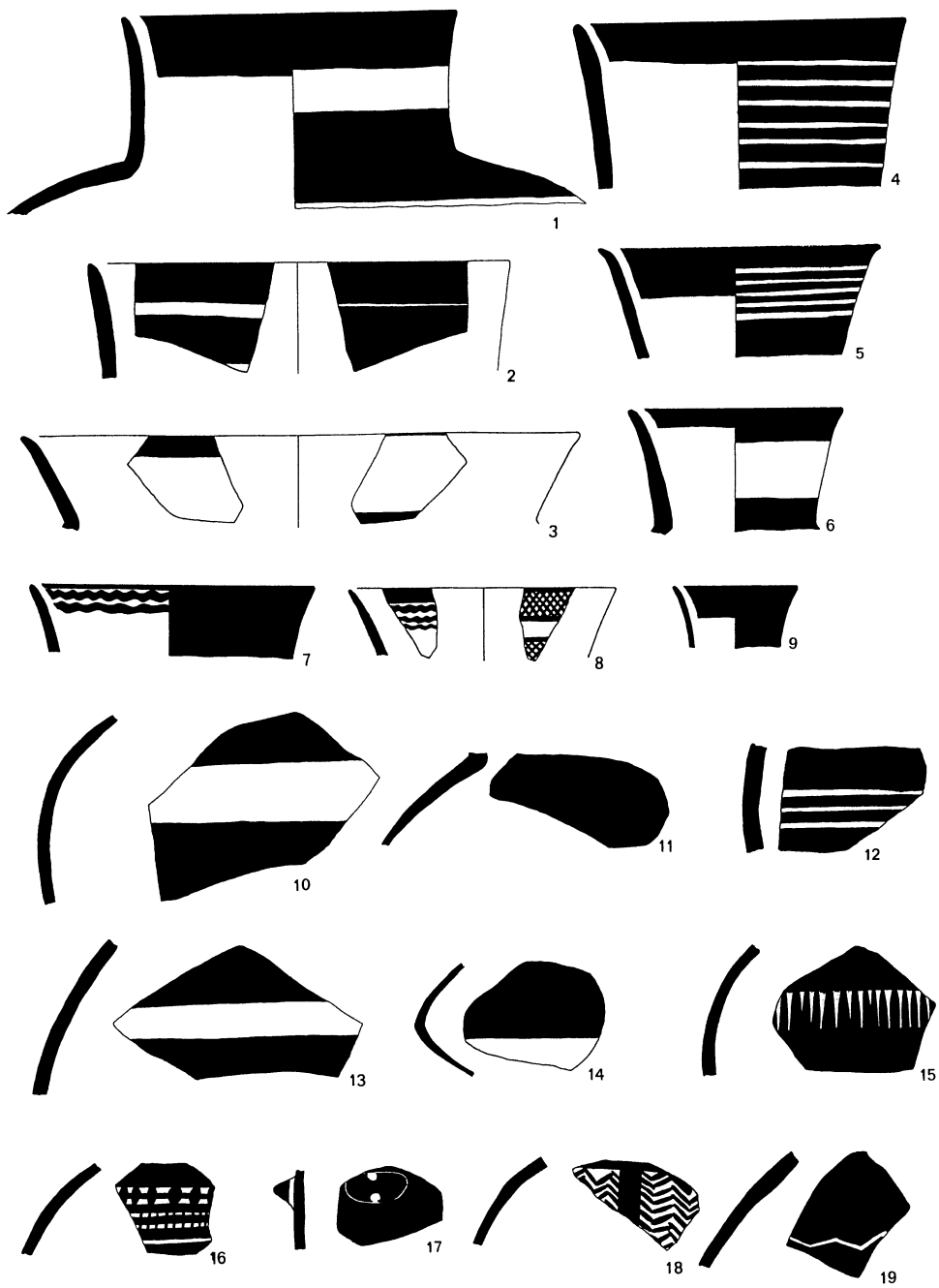


Fig. 6. Square W5/X5. Balikh IIIC. Halaf Fine Ware. Scale 1:3.

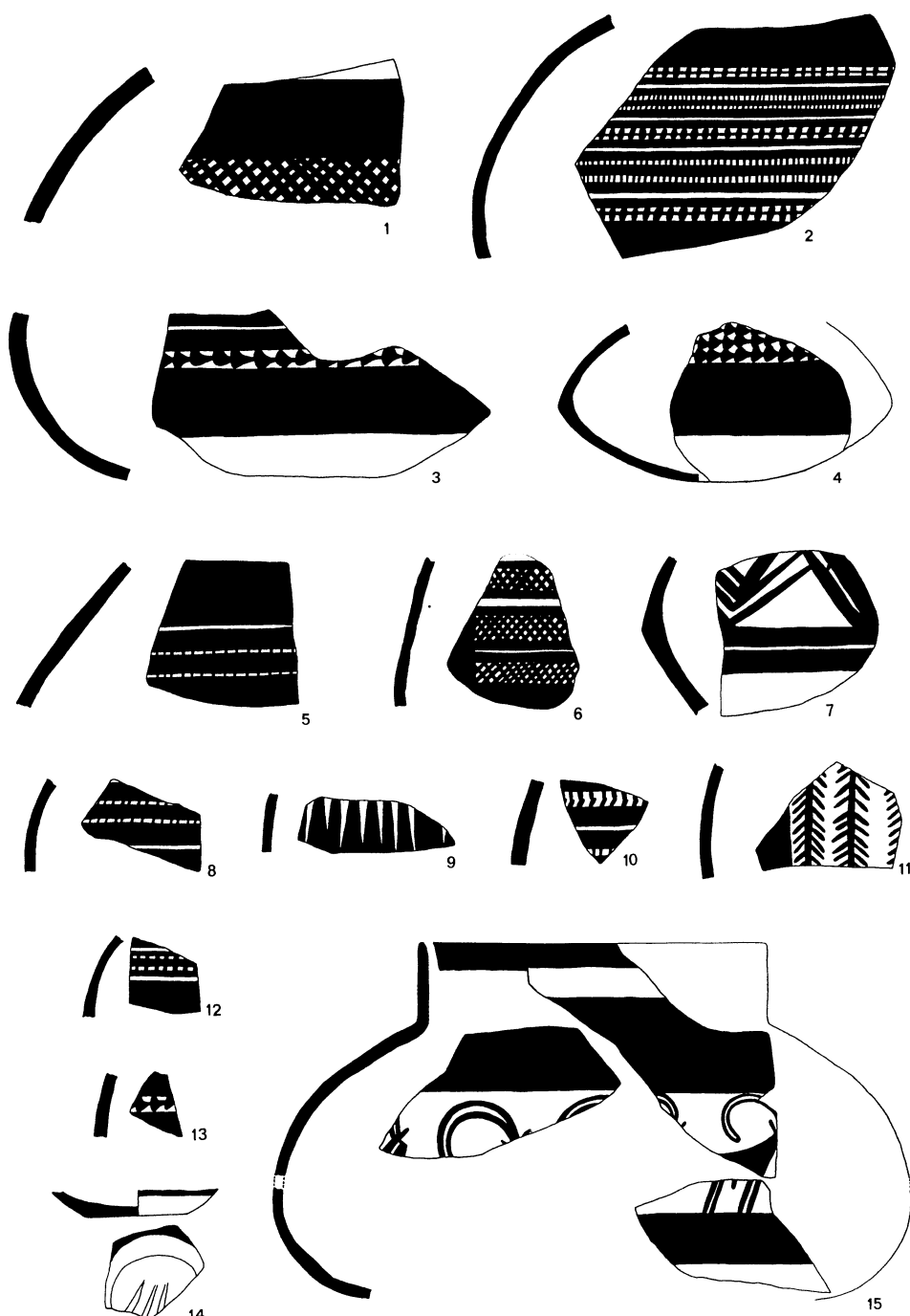


Fig. 7. Square W5/X5. Balikh IIIC. Halaf Fine Ware. Scale 1:3 (no. 15 scale 1:7).

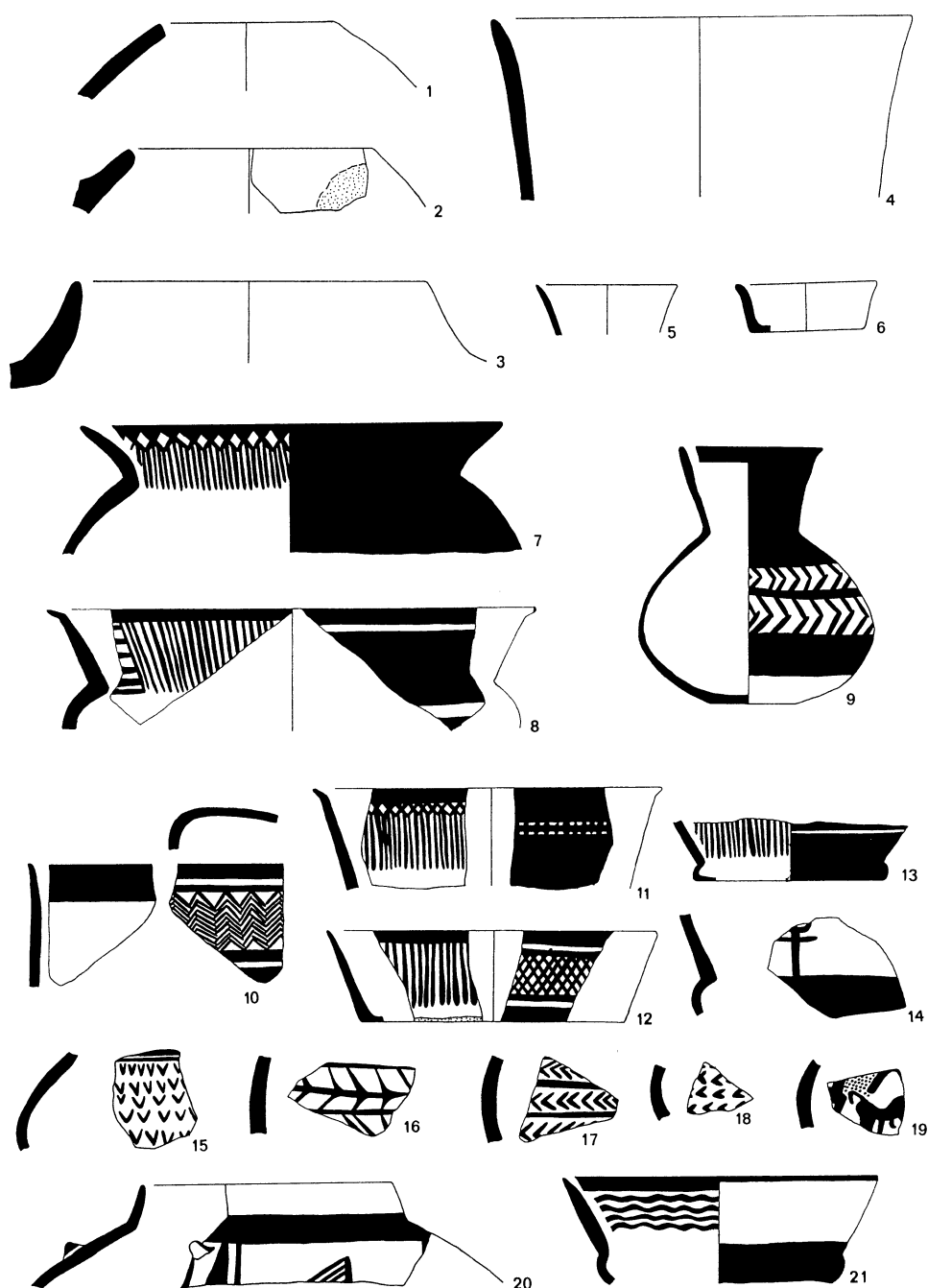


Fig. 8. Nos 1-6: square W5/X5. Nos 1-3: Mineral Coarse Ware. Nos 4-6: Grey-Black Ware. Nos 7-21: Halaf ceramics from Bronze Age levels. Nos 7-14: Balikh IIIC; nos 15-21: Balikh IIID. Scale 1-3.

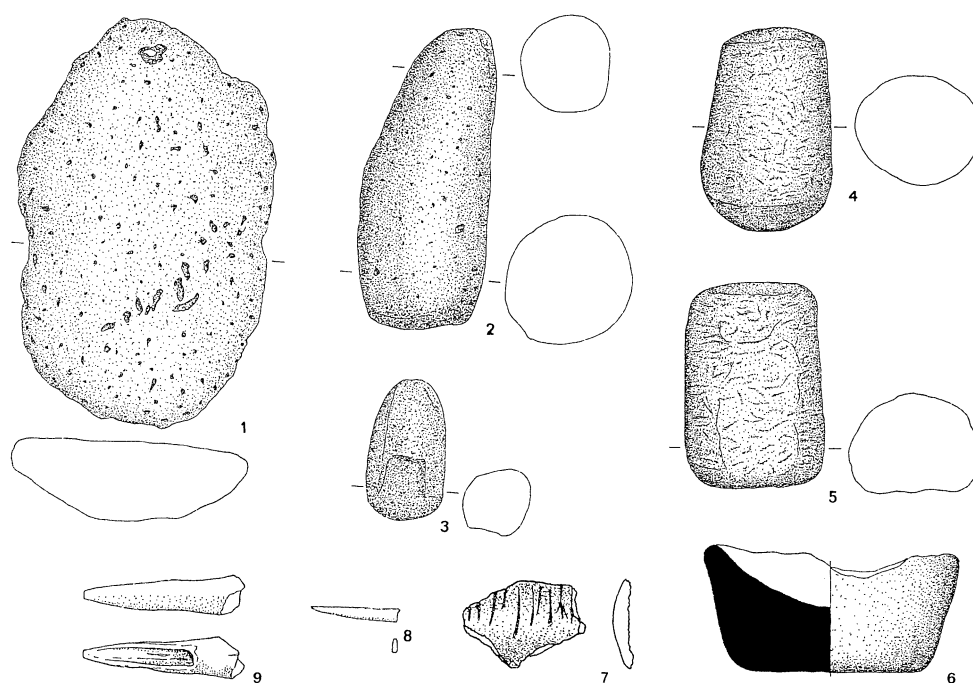


Fig.9. Nos 4-6,8,9: square V5; nos.1,3: Square X5; nos 2,7: square W5. Scale 1:3 (nos 7-9 scale 1:2).

<i>Square V5</i>	complete vessel	rim fragment	body fragment	base fragment	<i>n</i> <i>coll.%</i>
Halaf Fine Ware	4	88	763	48	903 72.0
Vegetal Coarse Ware	–	16	193	5	214 17.1
Mineral Coarse Ware	–	7	99	1	107 8.5
Grey-Black Ware	–	5	18	–	23 1.8
Dark-Faced burnished Ware	–	–	6	–	6
Red-Slipped Burnished Ware	–	–	1	–	1
<i>n</i>	4	116	1080	54	1254

<i>Squares W5 & X5</i>	complete vessel	rim fragment	body fragment	base fragment	<i>n</i> <i>coll.%</i>
Halaf Fine Ware	5	52	429	16	502 88.4
Mineral Coarse Ware	–	7	35	–	42 7.4
Grey-Black Ware	1	5	9	1	16 2.8
Vegetal Coarse Ware	–	–	8	–	8 1.4
<i>n</i>	6	64	481	17	568

Table 1: Tell Sabi Abyad 1988 North-east mound: proportion of wares.

PROTO-STARČEVO WHITE PAINTED AND EARLY PAINTED POTTERY OF SE EUROPE: Similarities and Differences ¹

*Bogdan Brukner*²

The problem of genesis of the painted pottery of the Starčevo culture (Garašanin 1979, 127-138), as well as the almost identical pottery of the Criș group (Lazarovici 1979, 35-38; Comșa 1987, 195), and similarities with Körös ceramics (Makkay 1981, 95-98) have been explained in general. It is well-known today that these cultural groups were a part of a larger Balkan and Middle Neolithic complex.³

Painted pottery of the Early and Middle Neolithic of southeastern Europe has a crucial role in determining the phases of development and specific characteristics of the earliest agricultural and stock-breeding communities of southeastern Pannonia, the southern Carpathian area and the Balkan region. It is relevant in the search for the geographical, chronological and cultural contacts and mutual influences between the Southeast of Europe and Asia Minor.

After the first investigations at the Starčevo site (Garašanin-Arandelović 1954) and other minor excavations in Serbia (Garašanin 1959, 4-12), the Starčevo group was classified as belonging to the oldest Neolithic period (Garašanin 1959, 4) with the phases I, IIa and IIb and III (Garašanin-Arandelović 1954, 144) or Starčevo I-IV stages (Milojčić 1949, 70-81). Analysis of the Starčevo group from eastern Slavonia (Dimitrijević 1969) led to the modified classification of the Starčevo cultural sequence (Dimitrijević 1979, 235-260).

The genesis of the Starčevo group according to Dimitrijević will be summarized here as the best illustration of the evolution of Starčevo pottery decoration.

To begin with, there is the Pre-classical Starčevo culture, which was later recognized by its monochrome and linear A or white linear pottery phases. It is followed by the Early classical Starčevo culture with its linear B or dark linear phase, followed a little later by a phase with garland-like designs. This sequence ends with the Late classical Starčevo culture with spiral A Phase and spiral B phase (Dimitrijević 1979, 237). The monochrome phase in Dimitrijević's classification is analog to Starčevo I, according to D. Garašanin (Garašanin-Arandelović 1954, 144), M. Garašanin (Garašanin 1979, 119) and V. Milojević 1949, 69), to Proto-Starčevo I (Srejović 1988, 15) and hypothetically to Gura Baciului I A (Lazarovici 1979, 220; Kalmar 1990, 15).

¹ This contribution was inspired by the participation at the "Neolithic Painted Pottery from Southeast Europe and its Links with Anatolia" symposium in Cluj-Napoca 1994. It got its final form in the library of the Institut für Ur- und Frühgeschichte of the University of Heidelberg as a segment of the work done in the Federal Republic of Germany and financially supported by the Alexander von Humboldt Foundation in Summer 1995.

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³ Middle Neolithic Starčevo Culture, s. Srejović 1968, 012; Early Neolithic Starčevo-Criș Culture, s. Lazarovici 1979, 216; Early Neolithic Körös Culture, s. Raczky 1989, 234; Trogmeyer 1989.

White painted linear A is comparable to Gura Baciului I B (Kalmar 1990, 15) or Starčevo-Criș I B (Lazarovici 1979, 40 Pl. II, 21-30) and Proto-Starčevo II (Srejović 1971, 7, 14-15). It should be emphasized that this phase, according Garašanin, Miložčić and Dimitrijević, belongs to the Early Neolithic period and is a constituent of the Starčevo culture.

For Srejović, the three phases of Proto-Starčevo belong to the Early Neolithic, while the further development of this group is assigned to the Middle Neolithic period (Srejović 1988, 15).

The middle and the late phases of the Starčevo culture are basically the same as the II-III phase in Garašanin's periodization (Garašanin-Arandelović 1954, 136-238), Miložčić's phases II-IV (Miložčić 1949, 70) and phases I-III by Srejović (Srejović 1993, 275).

At the present state of research of the beginning of Proto-Starčevo, there are still certain problems in the definition of the monochrome phase. In Srejović's opinion, Starčevo begins in the Early Neolithic (Proto-Starčevo I), since only the monochrome pottery occurs during that period (Srejović 1969, 165-167). This initial phase is still only hypothetical, and not a fully reliable stratigraphic indicator of the Proto-Starčevo characteristics (Srejović 1988, 15). The most recent results from Z. Kalmar's investigations bring us to the same conclusion. Based on the material from the oldest habitation level in Gura Baciului (GB), Kalmar considers the definition of the GB I A phase hypothetical (Kalmar 1990, 5). It is our opinion as well that it is too early to definitively single out the oldest settlement horizon with monochrome. Taking the Bulgarian, the Romanian and the Yugoslav parts of the Danube valley into consideration, one cannot speak of any larger areas which have been investigated. Small trial excavations do not offer us enough information which could lead to a definite conclusion, at least when so-called "fine" chronological and stratigraphic analysis of the process of Neolithization is in question, and it is very hard to recognize by itself. However, at certain sites in the Near East and Turkey it is probable that the monochrome phase was earlier than that of the white painted pottery. One example is the distinction of Eastern Marmara monochrome vessels in the Ilıpınar X and a Fikirtepe-Pendik group (Özdoğan 1983; Roodenberg 1993, 257).

Many experts on the Neolithization of southeastern Europe agree that the monochrome phase, or "Frükeramikum", represents the earliest phase of the Early Neolithic period (Özdoğan 1993, 177, 12; Wijnen 1993, 321). So far, J.P. Demoule has connected the issue of Neolithization in the Balkans with the formation of a monochrome horizon in the eastern Mediterranean in a very indirect way (Demoule 1994). Although our opinion on the chronological priority of the monochrome horizon appearance in Thessaly to the monochrome phase of some Bulgarian tells, as in Krañnici (Demoule 1994, 79), is similar to Demoule's theory, we are very restrained about the explanation of the origin of the monochrome horizon in the Southeast of Europe and the Southeast of Pannonia. J.P. Demoule has included Ilıpınar X (Turkey), Franchthi, Elateia, Sidari and Argissa-Frühkeramikum (Greece) and Krañnici (Bulgaria) in the earliest zone of Neolithization (Demoule 1993, 15, Map 1). In view of the principle which regards these sites as a part of the monochrome phase in the Neolithic of Southeast Europe, we are truly surprised that Demoule has not included the sites of Donja Branjevina (Karmanski 1979, 14-15) and Gura Baciului (Lazarovici 1984, 55, 91, 4-5, 7-10), as well as the widely acknowledged initial phase of the Early Neolithic in the Balkans and Romania, termed Proto-Starčevo I (Srejović 1988, 12). This view has been generally recognized in most of the archaeological publications on the Early Neolithic of the southeastern Balkans (Pavúk 1993).

The need to distinguish the monochrome phase within the Early Neolithic was first explained by a Greek expert on the Neolithic in Greece, D. Theocharis. In 1973 he wrote : "In the beginning, the pottery is monochrome. From Thessaly to Lerna and from Corfu to Skyros, the Early Neolithic phase is monochrome." (Theocharis 1973, 39). In the 1990's the settlement levels with monochrome pottery at the sites in Bulgaria could be distinguished. The best example exists at Kraïnici (Čohadžiev, Bakamska 1990). Now four phases can be differentiated within the Early Neolithic in Bulgaria: M (monochrome), and A-C (Todorova, Vajsov 1993, Tab. 2, Taf. 10). Interesting, but not yet proven, is the classification of the Early Balkan Neolithic Monochrome (EBNM) by Todorova and Vajsov (1993) with the phases A and B. However, we are not sure if it was necessary to include the early pottery horizon in Thessaly (Todorova, Vajsov 1993, 74) in the EBNM Phase A and to relate EBNM B with Proto-Starčevo and the Bulgarian monochrome sites: Plateau Poljanica, Kraïnici, Korprivec etc. (Todorova, Vajsov 1993, 74). We can only conclude that a more precise synchronization of the monochrome pottery horizon in southeastern Europe is yet to appear. Thus, we are prepared to agree with Todorova and Vajsov that certain common problems in the typology of monochrome vessels still exist. The codification of common and regional characteristics of the pottery from this period (Todorova, Vajsov 1993, 74, 273, 278) remains a task for the experts.

Before continuing with a detailed description of the similarities and differences between Proto-Starčevo white painted pottery and the synchronous phenomena in southeastern Europe, it seems useful to review some of the contemporary assumptions concerning relations between Asia Minor and the Southeast of Europe. However, before pointing out the examples which, in a wider sense, represent a modified migration theory, we should note that the model of an autochthonous genesis of the Neolithic is increasingly gaining credibility. The viewpoint of D. Srejović, one of the most prominent Balkan and European advocates of the theory of the autochthonous Balkan Neolithic-origin, deserves our full attention. This author divides Central, Southeastern and Eastern Europe into six zones (Srejović 1993, 271-278).

Analogous to the discussion about distinguishing a horizon with an autonomous monochrome and white painted pottery, other questions have also arisen. Redefining the character of possible connections and influence between the Balkans and Asia Minor, that is southeastern Europe and the Near East, has again become a current issue. From the 1950's to the 1980's the influence of theories on cultural adaption (Childe 1957, 16) and Neolithic migration (Schachermeyr 1984, 22) from the Aegean to the Balkans and farther North, predominated. With certain modifications, these interpretations of the genesis of the Neolithic were supported by certain aspects of economy and colonization. This applies especially when considering movement from the Near East towards Europe at the beginning of the Neolithic (G. Clark, S. Piggott 1967, 224-227; Clark 1964, 126-131). Some studies in European and other archaeological publications still favour the superiority of the Neolithic in Asia Minor (ecological advantage) over the one in the Balkans and Europe (Fagan 1983, 197-198).

The Vardar-Morava basin has long been considered a primary route for contacts between mainland Asia Minor and the central Balkans with Pannonia (Garašanin 1979, 79). Nevertheless, with reference to the spread of Neolithization in the Balkan region, central Europe and areas to the North and Northeast of the lower Danube (Romania, Moldavia and the Ukraine), it now becomes apparent that connections on almost parallel lines through the Struma-, Isker-, South Morava- and Danube basins must be taken into account (Nikolov 1918a, 199 Abb. 6; Lichardus-Itten

1993a, 72, Fig. 1), in addition to the aforementioned classical route. In fact, the opinion gaining support at the moment is the one holding that during the formation and development of the earliest phases of the Early Neolithic with monochrome and white painted pottery, there was not only one "King's highway" in existence, but several possible routes for expansion and transfer of ideas. The author would like to emphasize that there exist two main theories:

- 1) Neolithization was, in a broad sense, carried, developed and spread in a SE-NW direction.
- 2) Neolithization, originating from outside sources, was adapted by an autonomous substrate and then developed according to local individual tastes. This would explain the many regional particularities in the horizon of white painted pottery in southeastern Europe.

Support for our proposition is provided by the discovery of the earliest phases of the Early Neolithic at sites in the central part of northern Bulgaria; on rivers belonging to the Danube river basin, the Jantra and its tributary the Rošica (Koprivec) and on the Goljama Kamija river (Poljanica), which flows into the Black Sea in northeastern Bulgaria (Todorova, Vajsov 1993, 95 Map 10, 96).

In addition to the question of expansion and related to recent discoveries of the Early Neolithic in Bulgaria, Greece, Romania and Yugoslavia, the aspects of time (chronology), place (direction) and ways (mechanism, transfer) regarding connections between the Near East (Anatolia) and southeastern Europe (Greece and Thrace) have also become a current topic of discussion. Investigations in Turkish Thrace: Hoca Çeşme (Özdoğan 1993, 182-186) and Fikirtepe (Özdoğan 1989, 203-204) and northwestern Anatolia: Ilıpınar (Roodenberg 1993, 253-261) and Pendik (Özdoğan 1983, 401-411) have played a crucial role in the search for interrelations between the Southeast of Europe and Asia Minor.

Along with the paper about the appearance of a horizon with white painted pottery, a summarizing look at the unsolved issue of an autochthonous versus a migrational origin of the Neolithic in southeastern Europe is unavoidable. Despite the fact that these basic theories of migration and autonomy have long been in existence, many dilemmas remain. Both theories find support from many distinguished European and non-European scholars. Since it is practically impossible to list them all, I recommend several journals in which representative advocates are to be found (s. fn. 2).⁴

Vasil Nikolov reverted to the migration theory, pointing out that the Antalya Bay in the South of Asia Minor or the mouth of the Menderes River on the southwestern coast of Anatolia were the most suitable starting points for the migrating groups. The main cultural center of the movement was Hacilar in southwestern Anatolia, according to Nikolov (Nikolov 1989a, 193-194). M.H. Wijnen's opinion is very interesting. She points out the significance of the pottery typology and technology during the Early Neolithic in Greece (Wijnen 1993). She also makes some suggestions concerning evidence of the supposed relations between the Balkans and Anatolia (Pavúk 1993; Özdoğan 1993; Nikolov 1993, Lichardus-Itten 1993). Sfériadès has recently

⁴ Neolithic of Southeastern Europe and its Near Eastern Connections. *Varia Archaeologica Hungarica* II 1989; *Anatolica* XIX 1993; *Poročilo o raziskovanju paleolita, neolita i eneolita v Sloveniji* XXI 1993, particularly M.L. Sfériadès, The European Neolithisation Process 1993, 137-160; Demoule, Lichardus-Itten 1994, *Bulletin de Correspondence Hellénique* 118, 1994, 561-618.

dealt with the problem of the Neolithization of southeastern Europe and with the research leading to its solution. It appears that he has made a great effort in presenting a solution based on original ideas. Yet, since he mentions well-known facts concerning an independent process of Neolithization on all continents, developing upon an epipalaeolithic-mesolithic substrate, his conclusions are not much more innovative than those of other authors (Séfériadès 1993, 137-141).

Donja Branjevina in Yugoslavia is still the best representative of the Early Neolithic Horizon of white painted pottery. The site of Donja Branjevina is located near the town of Odžaci in the southwestern Bačka (Fig. 1). Rescue excavations began there in 1965 (Karmanski 1968) and have continued until the present (Karmanski 1989; Trbuhović-Karmanski 1993). The significance of this site for the studies of the Early Neolithic of southeastern Pannonia is manifold. So far, Donja Branjevina is the westernmost point where white painted pottery appears within a clearly defined settlement level.

According to N. Kalicz, in Transdanubia, the monochrome and Proto-Starčevo pottery links are missing (Kalicz, Schreiber-Kalicz 1992; Kalicz 1993, 88). The Proto-Starčevo monochrome phase and the white painted phase were not found in eastern Slavonia and western Srem, that is between the rivers Danube, Drava and Sava (Minichreiter 1992, 41). At the present state of research on the Early and Middle Neolithic in southeastern Pannonia, Donja Branjevina is one of the rare examples that provide the possibility for following the evolution from monochrome pottery until the end of the Starčevo culture. As the excavator Karmanski has published, in Donja Branjevina there are pit-dwellings, grave finds, an abundance of pottery fragments, fewer anthropomorphic figurines and artefacts of stone, bone and flint (Karmanski 1979, 3-18). He divides the stratigraphy into four phases: stratum III with a monochrome phase, stratum II with white painted pottery, stratum II-III with finds on the Körös groups (?) and stratum Ib-Ia with Starčevo material (?). The latter two are questionable (Karmanski 1988, 75-76). As a result, it is necessary to review the proposed stratigraphy of the cultural designations with the settlement levels. I should add that in this contribution our attention is directed mainly to stratum II, with white painted, dotted decoration, and partly to the oldest stratum III with monochrome pottery. Our correction of Karmanski's hypothesis relates to the later stratum (I?) only. I believe that Donja Branjevina phase Ia encompasses the Starčevo-stratum Ia also. The latest stratum Ib in Donja Branjevina belongs to the final phase of the Starčevo culture and perhaps to the beginning of Vinča-Turdas phase A (Bukner 1976, 40-50).

At present, stratum II (Karmanski 1979, profiles 4 and 5) has provided the greatest variety of white painted pottery in the entire Yugoslavian area (Karmanski 1979, T.XVII; T.XVIII; T.XIX, 1-3; T.XX; T.XXI; T.XXII; T.XXIV; T.XXV). In Yugoslavian (Garašanin 1979, 132) and Romanian (Vlassa 1972; Lazarovici 1979, Pl.II; Lazarovici, Maxim 1995) archaeological publications the problem of this pottery type has been widely and elaborately documented, occasionally in a rather synthetic manner (Pavúk 1993, 231-242). In view of the fact that the horizon of white painted pottery in Donja Branjevina is well-known, more details and new concepts about it will be included in this discussion. In my opinion, the pottery from Donja Branjevina is very useful in recognizing and following differences and similarities in the evolution of the Proto-Starčevo horizon within the genesis of the Starčevo-culture and synchronous phenomena in the Southeast of Europe.

In the Starčevo layer at Donja Branjevina (stratum II) only Early Neolithic white painted pottery was present (Fig. 2 and Fig. 3), together with pots and bowls decorated with pinch- and

fingerprint-technique or perhaps with impressions by bone tools (Karmanski 1979, 5, Taf. LXII, 1-6; Karmanski 1989, 1-2). Layers of stratum II were also found in cultural pits 1, 2, 6 and 7, as well as in pit 9 (Karmanski 1979, 3). Unfortunately, there are no statistical analyses of the ratio between white painted pottery, coarse ware and so-called monochrome pottery. Thus, we must be satisfied with Karmanski's repeated claim: "Relatively many fragments of the painted ceramics were found" (Karmanski 1979, 5; Karmanski 1968a, Taf. I-V; Karmanski 1979, Taf. XVII-XVIII, XIX 1-3, XX-XXII, XXIV-XXV; Karmanski 1989, Taf. I).

White painted pottery forms of stratum II (late Proto-Starčevo II phase) are basically similar to or identical with the types which appear later in the developed Starčevo culture. Analysis of the typology of ceramic forms leads to the conclusion that there is no important difference between the forms of the painted and the so-called fine and rough pottery. One can observe many variations of smaller and larger vessels with a rounded or semi-rounded recipient, a more or less emphasized pedestal and with an accentuated or less accentuated neck. These features are all typical for the Proto-Starčevo and Starčevo-I phase (Garašanin 1979, Pl. 11, 1), for Anzabegovo-Vršnik I (Garašanin 1979, Pl. 9, Ia; Karmanski 1979, Taf. LVI-LVII), for Early Starčevo of Transylvania (Vlassa 1972, Taf. 13.2, 16.2) and Oltenian (Nica 1977, Fig. 2,1), as well as for the Proto-Starčevo phase with white painted pottery in Romania belonging to Starčevo-Cris IB-IC (Lazarovici 1979, 40-41; Lazarovici 1984).

In the Greek Early Neolithic, when pottery is considered a chronological reference, the first pottery is monochrome (Theocharis 1973, 39). In the Proto-Sesklo phase of Thessaly "early painted pottery" appeared, so this term is often connected with "Early Neolithic painted pottery" in Greece (Theocharis 1973, 321, note 39).

One gains the impression that in the Greek Early Neolithic the appearance of painted ceramics is viewed in a more complex way, and that the authors do not insist on the distinctiveness of the white painted pottery as the only sign of the earliest phase of painted pottery origin (Theocharis 1973, 46, 47; Demoule 1993, 5-7; Wijnen 1993, 320-321). However, typology of certain pottery shapes from this period (Theocharis 1973, 280, P. 1) completely matches the design and technology of the vessel work in the Early Balkan and southeastern Pannonia Neolithic when the white painted pottery phase is concerned.

One should notice that in the Balkan Early Neolithic and southeastern Pannonia Early Neolithic, which overlap in the broadest sense with the appearance of the white painted pottery, there is a very similar concept of the workmanship of the so-called "fine ceramics" which concerns surface treatment (burnishing), polishing (slip) and "firing technique" manufacturing (term by Thissen 1993, 303). However, this surprising "standardization" (technological uniformity) on such a large area – from the northern borders of Starčevo culture in Yugoslavia and Romania, through Bulgarian and Macedonian areas, to Greece and the European part of Turkey, including also northern, northeastern and southeastern parts of Albania – also points to the beginning of regionalization.

The problem of identifying a Proto-Starčevo horizon in the southeast of Europe and the southeast of Pannonia, which is characterized by white painted pottery marking the beginning of ornamental painted decoration in the Early Neolithic, was much elaborated (Srejović 1969; Garašanin 1979; Vlassa 1972; Lazarovici 1979; Srejović 1988; Nikolov 1990; Todorova, Vajsov 1993; Lichardus-Itten 1993b; Pavúk 1993 and others) in recent years. In spite of this, the issue of territorial and cultural definition of the Proto-Starčevo phenomenon or culture remains open

for further discussion. It was the ensemble of symposia in Istanbul 1991, Cluj-Napoca 1994, the latest book by Todorova and Vajsov, published in 1993, as well as the results of the Turkish archaeologists' research in the Turkish Thrace and at the Anatolian plateau (Özdoğan 1989, Efe 1990) that enabled us to realize new similarities and differences in the white painted (dwelling) horizon genesis in the Balkans and the southeastern Pannonia, and its links with the situation in Asia Minor.

It is my opinion that as soon as the white painted pottery dwelling horizons in the southeast of Europe and in the south of Pannonia became accessible, *three cultural zones* that showed both similarities and differences in the workmanship (usage) of the ornamental decoration were clearly distinguishable. The similarities unite them within the Balkan-South Pannonian white painted pottery horizon (Pavúk 1993, Abb. 1), and the differences define them as genetic ancestors of the Starčevo-Criș-Körös-Anzabegovo-Vršnik-Karanovo I local communities and the Neolithic A/B and B in western Bulgaria.

It seems necessary to name a few cultural units that both culturally and chronologically, in a broad sense, belong to our three cultural zones. One of them is Proto-Sesklo in Greece (Milojević-Zumbusch 1971, c. 142-144; Hourmouziadis 1971, 169-170), which probably includes Nea Nikomedia as well (Rodden 1962). This choice is more a reference to certain cultural similarities and less an identification of an identical cultural horizon (Todorova, Vajsov 1993, 58, 67, 77). This also holds true for the Early Neolithic culture of Podgorie I in southern Albania (Prendi 1990), for which it remains difficult to say if it belongs to the Proto-Starčevo or Proto-Sesklo zone.

A narrower concept of the *first cultural zone* (Proto-Starčevo) encircles the horizons of Donja Branjevina II (Karmanski 1989, T. I), Gura Baciului I (Vlassa 1972, T. 15, 1-T.16, 2), Gura Baciului IB (Lazarovici 1984, Fig. 1) or Starčevo IA-IC (Lazarovici, Maxim, 1995, Gura Baciului I, 68-79) and Cîrcea Grădinile (Nica 1994, 1). Inside the mentioned territory (Fig. 2) on the northern borders of the Proto-Starčevo area, there is very probably Biserna Obala (Garašanin 1959, 1), which marks the entire ceramic material of the Early Körös phase or Körös I period (Brukner 1979, 20). In the central or, alternatively, southern regions of the Proto-Starčevo zone, one can find sites with layers including pottery with white painted ornaments mutually similar or identical to those found in the northern part. It is a territory (whole Proto-Starčevo zone) which is, in fact, the genetic ancestor of the Middle Neolithic cultural groups Starčevo-Criș, and perhaps a part of the Körös group. Lepenski Vir IIIa, which belongs to the white painted horizon (Gura Baciului phase, according to M. Garašanin 1979, 132-133), is connected with Proto-Starčevo dwellings (Srejović 1969, 166-167). A problem arises from the fact that, according to D. Srejović 1969, 167, "White painted net-like and triangular ornaments without radiance (C-1), appear together with straight line ornaments painted with diluted dark colour (C-2)." In our opinion, this would mean that Lepenski Vir IIIa belongs to a somewhat later Proto-Starčevo phase than Donja Branjevina II-Gura Baciului I (IB). Similar conclusions are reached concerning the white painted ceramics from Grivac (Bogdanović 1995). The finds from Grivac (Barica and Gruža sites) were first discovered and published in the sixties (Gavela 1958). They were later interpreted as a distinct entity in the context of the Gura Baciului group or Starčevo I phase (Garašanin 1979, 132-133). New excavations in the nineties were published in 1995 (Bogdanović

1995) with the new finds, and they show that central Serbia accepted the traditions of white ornament (decorative) painting from the cultural circle of white painted horizon of the Donja Branjevina II-Gura Baciului I type (IA-IC according to Lazarovici, Maxim 1995, 5). It is therefore very plausible to expect sites with separated white painted horizon in Šumadija and in the valley of the Morava. As proof of our statement we point to the frequent use of dotted and drop-like ornamentation in Grivac (Bogdanović 1995, T. VI, 3; T. VII, 1, 3, 9; this text Fig. 4, 1). The aforementioned decoration is identical in style and type with the decoration from Donja Branjevina II (Karmanski 1968a, 1975, 1989; this text T. I, II) and with Gura Baciului IA-IC (Lazarovici, Maxim 1995, 5, T. PCI-PCIV etc.). The white net-like lines from Grivac (Bogdanović 1995, T. VII, 6, 8) also point to the tradition of the late Proto-Starčevo manner from Donja Branjevina (Karmanski 1989, T. 6 etc.). Furthermore, drop-like dots connected with lines in Grivac (Garašanin 1979, T. XX, 10; Bogdanović 1995, T. VI, 6) and some sort of saw-like motif (Garašanin 1979, T. XX, 9); Bogdanović 1995, T. VII, 11) are not typical of the Pannonian-Danubian Proto-Starčevo white painted horizon. This kind of decoration is found in the southern zone, as for example in Anzabegovo, phase IC (Garašanin 1979, pic. 9, IC5; T. XIII, 1, 4).

For our preliminary conclusion on the cultural and relative chronological determination of Grivac II phase an analysis of style and type of the monochrome Grivac I dwelling horizon can be very helpful, because it represents the end of the Early Proto-Starčevo phase, which is later than the Donja Branjevina I phase, when one takes the occurrence of barbotine technique into consideration (Bogdanović 1995, T. IV, 5). Therefore, Grivac IIa, in which the dark painting, similar to the linear B stage, actually prevails, belongs to the late Proto-Starčevo or the end of Starčevo IIa (Garašanin 1954). We could conclude that Grivac I-IIa-IIb, which are represented by the sites of Barice and Gruža, are a homogeneous entity which began in the late monochrome phase and ended before the beginning of the Middle Neolithic (Classical Starčevo or Starčevo IIb phase). This conclusion was also drawn by M. Bogdanović (1995), from whom we expect to publish the valuable material from Early and Middle Neolithic in the valley of the Morava (Srejšević 1988, 51); Bogdanović 1995, 10-15, fn. 7-30) in the near future. The area in question belongs to the cultural highway stretching from the South to the North (Vardar-Morava-Danube-central Europe).

In the *second cultural zone* many sites appear in which the Early Neolithic settlement horizons with white painted pottery can be distinguished. This is the case of the Bulgarian Early Neolithic A, which is incorporated in the Early Balkan Neolithic A (EBN-A), according to Todorova and Vajsov (Todorova, Vajsov 1993, 78), and which also shows local geographic and cultural phenomena (Nikolov 1984, 27-32; Todorova, Vajsov 1993, 97-98; Demoule, Lichardus-Itten 1994). The tendency to separate the local cultural groups is also apparent (Pavúk 1993, Abb. 1). Indeed, the ceramic horizon of the white painted pottery (Fig. 2) allows identification of the local phenomena: the Slatina group in the area of Sofia (Nikolov, Grigorova, Sirakova 1992); the Gălăbnik group, named after the site on the river Blato, Struma's upper basin tributary (Pavúk, Čohadžiev 1984, Tab. 1), and the Kovačevo facies in the Struma mid-basin (Demoule, Lichardus-Itten 1994). The Kovačevo site could, considering the geographical position and cultural contents, also be defined as a representative of the local "Kovačevo white painted horizon" group. It may be useful to point to some terminological and other doubts concerning the issue of identification and the use of the term "cultural group" in the Early Ceramic Neolithic. Accepting the fact that

this term was also introduced into the professional publications as a term denoting the Early Neolithic situation in the central Balkans, before the constitution of the "classical" Starčevo-Kriš-Karanovo settlements, it spontaneously influenced the opinion that differences in pottery typology, as well as ornamental decoration differences on the fine pottery, completely represent cultural regionalism. There is a question whether the whole second zone really contains such great Early Neolithic settlement differences. This complex issue concerns the northwest, west and southwest of Bulgaria. It is closely connected by synchronicity with Proto-Starčevo areas in the Yugoslavian and Romanian Danube basin, the horizons of Early Anzabegovo-Vršnik I period in eastern Macedonia and the Early Karanovo I period in Thrace. It is a fact that the publications on the white painted dwelling horizons from western Bulgaria point to the existence of considerable stylistic development differences. Such differences have not shown up in the first cultural zone. We can also assume that, on the basis of the analysis of the genesis of white painted ceramics, there is a possibility of more phases, showing a longer evolution of settlements or parts of settlements where white ceramics were exclusively used in some places in the Bulgarian area. For example, horizons I-IV at the Slatina site clearly represent the Early Neolithic of this part of the central Balkans (Nikolov, Grigorova, Sirakova 1992, 232). Very detailed published material from a horizon IV house, which belongs to the white painted dwelling horizon, brings us to the conclusion about the long settlement evolution of Slatina (Nikolov 1990, 78; Grigorova, Sirakova 1992). Without any doubt, this is a very important settlement from the Early Neolithic of southeastern Europe (Nikolov 1989b), which requires careful analysis (architecture and movable archaeological household artefacts), and comparison with chronologically close sites discovered in the Balkan-Pannonian region. This would contribute to a more precise definition of the cultural achievements of the Early Neolithic communities from the Southeast of Europe and Pannonia. At the present level of explorations, it is too early to draw any conclusion on the relations between either Slatina's architecture from horizon IV or horizons with Proto-Starčevo white painted ornaments. So far, the cultural and typological hypotheses remain valid. These hypotheses are based on the appearance and development of certain ornamental techniques in the Early Neolithic Proto-Starčevo horizons (sites) of the Romanian and Yugoslavian region, and especially ceramics from the Slatina horizon IV house. In the report on the investigation of this horizon's coarse ceramics version, also some fragments with barbotine technique are mentioned. The number of vessels made in barbotine technique (seven) is smaller in comparison to other rough pottery (Nikolov, Dočeva, Gacov, Kovačeva, Skakun, Ninov, Stoilov-Bunkera 1992, 111).

The situation at the Proto-Starčevo sites is different. In the dwelling horizon with white paintings from Donja Branjevina II phase, it seems as if vessels ornamented in barbotine technique do not exist (Karmanski 1975, 4-7). This kind of ornamentation appears in the later phases (Karmanski 1979, T. VIII, Pic. 2). There is no indication that barbotine appears in the Gura Baciului I stratum (Vlassa 1972, 184), which usually contains well-known white painted pottery (Vlassa 1976, 224-230). In our opinion, in Cîrcea "Hanuri"-level I final (Nica 1977, 16) there is no barbotine decorated pottery (Nica 1977, Fig. 10). In Lepenski Vir, stratum III A directly above the pit horizon (Srejović 1971, 8), specific barbotine technique appears (A4 ceramic group) together with the white painted (C1), but also the dark red painted (C2) fine ceramics. However, there is no classical barbotine (Srejović 1971, 13). Thus, Lepenski Vir's IIIA, level just above pits, known as the Proto-Starčevo II phase (Srejović 1971, 14), complies with the pre-classical level of Starčevo culture which, according to S. Dimitrijević, belongs to the white painted A

level (Dimitrijević 1979, 237). Within this level there is no barbotine ornamentation (Dimitrijević 1979, 242). Barbotine does not appear before the next phase of the Early Classical Starčevo culture, known as “dark linear” (linear B) level (Dimitrijević 1974, 85). Painted dark linear (level B), mentioned above, is analogous to the Lepenski Vir IIIB phase, consisting of a horizon with overground cabins in which barbotine technique becomes more frequent (Srejović 1969, 169).

Still, there are some unsolved problems or, at least, disputable issues concerning a very precise definition of the absolute dominance of the white painted decoration over the dark one in western Bulgaria. An explanation could probably be found in the local differences in the formation of settlements, which are represented in the multi-phase scheme of the white and dark ornamentation genesis, while white ornamentation still has chronological priority for the Bulgarian authors. Barbotine appearance is sometimes surprisingly early. For example, J. Pavúk found fragments with barbotine surface and some other coarse ceramics together with white painted pottery in the Gălăbnik horizon I (Pavúk-Čohadžiev 1984, 201). In Krañnici, above the layer with monochrome pottery, Early Balkan Neolithic-Monochrome b (EBN-Mb), a sterile layer was formed, above which an Early Neolithic with white painting appeared (EBN-Aa) (Todorova, Vajsov 1994, T. 10). However, the typology of ornamentation is heterogeneous, ranging from simple curved linear ornaments to the more sophisticated ones (Tchohajiev, Bakamska 1990, T. 18 etc., T. 21 etc.). In the horizon representing the so-called West Bulgarian Painted Culture (WBPC), dark motifs can also be found on the biconical vessels (Čohadžiev, Bakamska 1990, T. 23, 1, 3). This example also illustrates the difficulties of the automatic typological comparison and chronological gradation of the Early Neolithic sites with white paintings in western Bulgaria. M. Lichardus-Itten writes very convincingly about this, naming the difficulties of synchronization of some aspects of the Bulgarian Early Neolithic (BEN) in the upper parts of the Struma valley and Proto-Starčevo Early Neolithic in the area of development of Starčevo-Criș groups (Lichardus-Itten 1993b, 104). Though many agree that white painted ceramics stratigraphically and chronologically come before the dark ornamentation in the BEN and Late Proto-Starčevo sites (Lichardus-Itten 1993, 103), it is quite clear that the beginning of some settlement foundations can be dated to the time of both white and dark ornamentation use, but in the period before the formation of developed Karanovo I - Starčevo-Criș phases. So, for example, the beginning of Gradešnica settlements (A phase) in the northwest of Bulgaria is characteristic for the synchronous appearance of white and dark decoration with simple curved linear, zigzag and other motifs. This led Todorova and Vajsov to date Gradešnica to the late phase EBN-B (Todorova, Vajsov 1993, 98, 104, *Ris.* 95). One can only add that the stylistic concept of white paintings from the Gradešnica A phase (Nikolov 1975, 5a) refers back to the simplicity of the motifs on the early white painting phases in Kovačevo I (Demoule, Lichardus-Itten 1994, Fig. 18). Otherwise, the dark decoration in Bulgaria is always associated with phase II of the Early Neolithic. However, the tendency of chronological nuancing into phases I and II exclusively on the basis of typological differentiation between white and dark ornamental decoration is difficult to accept (Čohadžiev 1988, 66-67).

The division of the Early Neolithic in western Bulgaria according to Čohadžiev, who differentiates three phases (I-III), where white paintings (I) are divided into subphases IA and IBm, has not been unanimously adopted by Bulgarian Neolithic experts. This distinction has not, so far, been confirmed by the excavations, so it cannot be applied to the attempts of comparison to the Proto-Starčevo horizons of Yugoslavian and Romanian provenance. Still, Čohadžiev's

apprehension of the phased evolution of white painted ornamentation appeared to be correct. However, it seems that this stylistic and typological evolution has no decisive significance for the stratigraphic and chronological determination of the role of white painted ceramics in the BEN. Čohadžiev's hypothesis reminds one of the need to establish correlations between, most probably, multi-phased development of ceramic Early Neolithic in the Balkans, which necessarily demands careful analysis of the stratigraphically clearly isolated dwelling horizons. Is this possible? Fortunately, the Bulgarian material is, at the moment, the most numerous, and both typologically and stratigraphically the most interesting.

The hitherto published material (Brukner 1979; Demoule; Lichardus-Itten 1994; Karmanski 1968a, 1975, 1987; Lazarovici, Maxim 1995; Lichardus-Itten 1993a; Pavúk 1993; Todorova, Vajsov 1993; Nikolov 1992 and other publications) enables us to analyze the similarities and differences in the genesis of white painted decoration from southeastern Pannonia and southeastern Europe.

Local differences within the Bulgarian Early Neolithic with white painted horizon (BEN-A) are best illustrated by the published examples from Slatina (Nikolov, Grigorova, Sirakova 1992) and Kovačevo (Demoule, Lichardus-Itten 1994, Fig. 10-12, 18-21). These differences are clearly featured in the details of the ornamental motifs perception. So, for example, the Slatina horizon contains combinations of net-like and other motifs (Nikolov 1992, 61-64) that are not obviously matched by any find from Kovačevo I phase (Demoule, Lichardus-Itten 1994). Similar examples and dilemmas probably led J. Pavúk to the conclusion that Slatina and Gālābnik groups should be set aside (Pavúk 1993, Abb. 1).

These differences are obvious when the published material is compared to: the white painted decoration from Gālābnik I horizon (Pavúk, Čohadžiev 1984, Abb. 5-7; Abb. 9, 1-2; Lichardus-Itten 1993, Abb. 7. C), the Gālābnik group as a whole (Pavúk 1993, Abb 3 *Keramik der Gālābnik Gruppe*: 12-15, 19-20, 23 *Gālābnik*; 16-18, 21-22 *Krajinci*), white painted ornamentation in the Karanovo I phase (Hiller, Nikolov 1990, 19, Abb. 10; Hiller, Nikolov 1991, 17, Abb. 8) and especially the Proto-Starčevo horizon in Yugoslavia and Romania (Vlassa 1971, T. 15, 1,2; T. 16, 1 and Vlassa 1976, Fig. 25-27, Fig. 28-30 *Donja Branjevina*). It is useful to notice that spiral, net-like and curved linear decorations inside the Gālābnik group (Pavúk 1993, Abb. 3, 14, 20 a-b, 22-23), and also in the Kovačevo I horizon (Demoule, Lichardus-Itten 1994, Fig. 5-6, Fig. 12, 1-3) are perhaps of regional significance, since there are also very noticeable similarities (Pavúk, Čohadžiev 1984, Abb. 5, 7, 9; Demoule, Lichardus-Itten 1994, Fig. 11, Fig. 18, Fig. 20).

Disregarding subtle and complex analysis of the chronological and stylistic connections between the Early Neolithic sites in Bulgaria, it is necessary to look generally at the new research on the Karanovo site. It should be stressed that the Early Neolithic in the Struma mid-basin (Kovačevo I) is synchronous with Karanovo I, because at both sites the white painting appears in the oldest dwelling horizon (Demoule, Lichardus-Itten 1994, 581). V. Nikolov's conclusion that the before-mentioned house from the Slatina IV horizon with white paintings is synchronous with the Karanovo I period, first phase (Nikolov 1989, 28) is noteworthy. The research of the earliest phase of the Early Neolithic settlement Karanovo I (settlement horizon VI), where a white painted tulip-shaped vessel was found, is convincing proof of the chronological priority white painting has, featured on this typical Karanovo Neolithic vessel shape belonging to the regional Thrace facies (Hiller, Nikolov 1991, Abb. 7, Abb. 8). Since the dwelling horizon (houses

V-VI) belongs to Karanovo I phase, it is evidence of the ability to build dwellings and decorate interiors (Hiller, Nikolov 1990, 4-25) as soon as the first houses were erected (object VI). We are ready to accept the possibility of earlier discoveries inside the Karanovo I phase, but this has yet to be shown.

In the *third cultural zone*, as a terminus technicus, we reckon the Early Greek Neolithic (EGN), that is Proto-Sesklo and the rainbow-ware zone (Demoule 1993, carte 1), or the Proto-Sesklo - Frühneolithikum (Early Neolithic I) division, which includes Early Painted (Early Neolithic II) and Buntpunkte (Early Neolithic III) according to Wijnen (1982, 11). Accepting the term "Early Greek Neolithic" (Theocharis 1973, 47; Wijnen 1993, 319-327), we can further discuss only the issue of chronological relation between the white and dark ornamentation from correctly distinguished, stratigraphic levels of EGN. Perhaps it would be worthwhile to notice that EGN is an example where some authors do not emphasize sufficiently the possible cultural and chronological distinctions of white and dark ornamentation (Theocharis 1973, 46-47); Wijnen 1982, 56-58); Wijnen 1993, 320-321; Vitelli 1993, 91-199). It may be too early to insist on the chronological priority of either white or dark ornamentation within the EGN. At least, it still does not considerably contribute to the chronological evaluation of the development of the common Early Neolithic characteristics. Many problems are still left to be solved, for example in the research of Sesklo-Early Painted (Theocharis 1973, 47) or Early Neolithic (EN) II period (Wijnen 1982, 11). For instance, it was stated that inside the Sesklo site reddish painted decoration appears in the EN II period (Wijnen 1993, 322). In the previous study, the same author drew the conclusion that EN II includes "... painted decoration: red on white slip or buff surface, white or light red on red surface line patterns, broad bands and solid triangles ... placed on exterior, horizontal or vertical ..." (Wijnen 1982, 35). It is useful to draw the chronological and stylistic parallel to the similar ornamentation on some EGN sites: Achilleon Ib (Gimbutas, Winn, Shimabuku 1989, 137, Fig. 5. 70), Franchthi (Vitelli 1993, Fig. 11) and, first of all, Thessalian sites (Otto 1985, Abb. 13). Otto's monograph is, so far, the best publication on this topic, which clearly enables us to follow, among other things, the appearance and development of the painted pottery in the Thessalian Neolithic (Otto 1985). The earliest painted pottery draws its origin from the Proto-Sesklo period, from the northern Thessalian tells of Otzaki and Argisa Magula and some other Thessalian sites: Sesklo and Achilleion (Otto 1985, 45, 47-48). It appears in level IIIa of Otzaki and level III of Argisa (Otto 1985, 45). In Argisa it was named A3 α 1 painted ceramics (white ornament on dark red painted ceramics), A3 β 1 (cherry red-ochre red ornament on white painted ceramics) and A3 γ 1 (cherry red or light red on the clay colored surface), according to B. Otto (1985, 29, 35-36, Abb. 6). White painted triangles, together with dark painted, irregular quadrangles were also found here (Otto 1985, taf. 3,4). In Otzaki, the motifs of dark triangles were found (Otto 1985, taf. 3), together with the combination of white curved and straight white motifs (Otto 1985, taf. 3,8) and curved linear motifs (Otto 1985, taf. 3,9). In Sesklo, white painted triangles occurred (Otto 1985, taf. 3, 10). In EGN Franchthi ceramic phase I (FCP 1) some fragments of painted ceramics were found "in front of the cave" and "on the slopes of Paralia" (Vitelli 1993, XIX, 41-48). Spherical vessels ornamented with red sheaves of zigzag lines on the light red surface can often be found (Vitelli 1993, Fig. 11, c. g, h, 11). Typologically, a fragment with a broad band around the rim and sheaves of parallel zigzag lines (Vitelli 1993, Fig. 17, a, d) visually reminds one of the example from Otzaki and Proto-Sesklo, seen from a different

perspective (Otto 1985, Taf. 3, 7). The above mentioned fragment is being used as a typological parallel with the vessel from Gura Baciului I horizon, the Proto-Starčevo one (Vlassa 1972, Taf. 16, 2). An even better typological and stylistic example can be found in horizon II of Donja Branjevina (T. II, 2) with white filled triangles filled with thin white painted lines (Fig. 4, 2; Karmanski 1979, T. XXII, 10; Karmanski 1989, T. I, 5). This fragment unites the usage of filled white painted triangles of the Proto-Sesklo period from Sesklo (Otto 1985, Abb. 13) and white triangles filled with lines from Kovačevo I phase (Demoule, Lichardus-Itten 1994, Fig. 20). However, we are far from the intention to draw any conclusion on hypothetical far-reaching and straight synchronous relations between Proto-Sesklo – Kovačevo I – Proto-Starčevo (Donja Branjevina II, Gura Baciului IB). In fact, there are several details with a cultural (and regional) character that lead towards the assumption of a strong and obviously regional (local) development of the EGN, including the earliest painted pottery. This is perhaps parallel in part to Proto-Starčevo in the broadest sense. Similar conclusions were also drawn in the case of Kovačevo I type Early Neolithic in the southwest of Bulgaria (Lichardus-Itten 1993, I a, b).

Having relatively new information on EGN with early painted pottery, it seems too early to connect the white painted pottery horizon of the Proto-Starčevo zone with the earliest occurrence of the vessel painting of Thessaly. It is symptomatic that, for instance, in the coastal area of Greek Thrace and eastern Macedonia, there have not been any discoveries of Early Neolithic sites (Efstratiou 1993, 35). One has to take into account the fact that the sea level is approximately 10 meters higher today than it was in the Early Neolithic on the northern Aegean coast, which could have caused the submersion of Early Neolithic sites in the Struma lower-basin (Lichardus-Itten 1993, 101, Abb. 2, 107-108). This phenomenon would have had great influence on the studies of the North Aegean Early Neolithic. A detailed technological study of the Early Neolithic ceramics of Franchthi (FCP 1, with inter-ceramic phases, and Middle Neolithic ceramics FCP 2), brings us to the theoretical conclusion that pottery was locally manufactured, which could lead to the appearance of autochthonous painting (Vitelli 1993, 207). J.P. Demoule's synthetic conclusion: "...tandis que la technique à peinture brun-rouge sur engobe blanc est surtout présente en Thessalie méridionale (Magnésie) et orientale..." (Demoule 1994, 80) could, perhaps, best illustrate the way that analysis of the white or dark painted ornament appearance has not given circumstances of its origin almost any significance! For example, in the publication on Achilleion, one can find the claim that dark triangular ornaments represent the first painted pottery on white slip at Achilleion Ib (Gimbutas-Winn-Shimabuku 1989, 96, Tab. 5, 6; Fig. 5. 70, 1-4). However, in the same publication, a quite opposite statement was made: "The earliest examples of painted pottery – white triangles on reddish background – appeared in phase Ib, around 6300 B.C. (Gimbutas-Winn-Shimabuku 1989, 27, 335). This misunderstanding between the Achilleion authors enables us to consider white and dark ornamentation on the Proto-Sesklo ceramics I-II (Achilleion Ib, according to Gimbutas-Winn-Shimabuku 1989, 28, Tab. 3, 4) exclusively in the context of chronological and stylistic painted decoration genesis on the ceramics of southeastern Europe. The attempt to find some further stratigraphic, chronological and typological synchronization of the early ceramic groups with paintings belonging to the "früher bemalten" ware group (Otto 1985, 53-54) in Greece and its neighbouring areas in the southeast of Europe is quite a difficult problem. This is why it is hard to give an exact chronological and typological synchronization of the Achilleion I Early and Middle Neolithic (Early Ceramic Neolithic) phases, Achilleion Ib-IIb (Proto-Sesklo) and Achilleion IIIa-IVb (Classical Sesklo), according to Gimbutas-

Winn-Shimabuku (1989, 28, Tab. 3, 4), in confirmity with the usual and widely accepted order: Early Neolithic (Praekeramikum, Frühkeramikum, Proto-Sesklo and Vorsesklo I-III) and Middle Neolithic (Sesklo I-III) (Otto 1985, 34).

Someone could perhaps conclude after reading this article that our intention was to try to influence the view of the formation of new synchronous and chronological connections within the initial phases of the Early Balkan Neolithic through a stylistic and typological analysis of the white painted ceramics from the southeast of Europe. However, this was not our aim. We wished to emphasize that the occurrence of white painting appears before the dark decoration within the Proto-Starčevo cultural zone and in the Early Neolithic of Bulgaria. Furthermore, it seemed to be very useful to try to find out if there is any stylistic similarity in the visual concept of creating ornamental symbols in the opening phases of the Early Balkan Neolithic. More precisely, we are interested in the issue of certain cultural zones – whether they are more compact than others in the stylistic manner and what elements of decoration are used in all cultural zones.

In the late Proto-Starčevo phase, best represented by Donja Branjevina II phase (Karmanski 1979, T. XVII-XVIII; T. IX, 1-3; T. XX-XXII) and Gura Baciului I phase (Vlassa 1972, T. 15-16; Lazarovici, Maxim 1996, PCI-PCVI), white painted ornamental decoration shows uniformity, so we assume that the Donja Branjevina II and Gura Baciului I cultural group of the Proto-Starčevo Early Neolithic period were contemporaries. This cultural group covers a broader zone of the Yugoslavian and Romanian Danube basin. However, in the area to the south of the Sava and the Danube, in the broader Morava basin zone, the assumption of a Proto-Starčevo white painted phase is based on the existence of certain isolated, only partly explored locations (Bogdanović 1995). Since the Proto-Starčevo phase is the genetic ancestor of the Starčevo group in the Middle Neolithic, it would presumably be logical for both to cover the same territory.

In the white painted ornamentation or Donja Branjevina II phase, it seems that drop-like decoration prevails, according to the published material (Fig. 3; Karmanski 1979, T. XVII, 1-4a, 6-7a; T. XX, 1a-b, 2-6, T. XXI; T. XXIV). It is identical to the less frequent decoration of Gura Baciului I (Vlassa 1972, Taf. 15; Lazarovici, Maxim 1995 PC I. 2, 6; PC II. 10; PC IV. 2; PC V. 11-13) and Cîrcea-Gradinile (Nica 1994, T. I, 1, 3; T. III). In the northern zone of the Proto-Starčevo spreading phase, in Biserna Obala near Subotica, drop-like decoration appears in the context of other archaeological finds, which enables us to date Branjevina II–Gura Baciului I to the beginning of the Körös I period (Brukner 1976, 216). The discovery of five white painted sherds (Makkay 1981, Fig. 1:1, 2, Fig. 2:1, 3-4) and two with black painting on a red surface from the Szarvas site No. 23 makes it possible to search for some new approach to the survey of the role of the Proto-Starčevo horizon in the shaping of the Körös group. There is no doubt that some painted Körös ceramic finds could be dated to the time after the monochrome and white painted Proto-Starčevo phase after Proto-Körös and Körös I (Brukner 1979, 216-217)), that is within the Körös II, linear B level (Dimitrijević 1979, 243-246, T. XLI). The appearance of white, drop-like decoration in Szarvas (Makkay 1981, Fig. 2:1, 4) points to a Proto-Starčevo and Proto-Körös influence in the region north of Biserna Obala (Subotica) in the development of the Middle Neolithic Körös group that is stronger than it was supposed.

It seems, at least for the moment, that the exclusive drop-like combinations of ornaments were typical of the first cultural zone. So far, we do not have data on drop-like decoration in Macedonia, particularly in the Anzabegovo-Vršnik and Veluško-Porodinska groups (Zdravkovski

1990, 52). In the case of the Early Neolithic of Greece and Bulgaria we do not have any samples of the “pure” drop-like decoration of Proto-Starčevo type.

Variations of drop-like decoration in Donja Branjevina, whether applied to the whole vessel surface (Fig. 3, 1), or grouped in parallel lines below the rim (Fig. 3, 2-3), or in the form of triangles (Karmanski 1979, T. XVII, 2; XXI, 2) and irregular quadrangles (Karmanski 1979, T. XVIII, 2), remains a specific kind of white painted decoration on pottery of the Proto-Starčevo Early Neolithic phase.

White point ornamentation is more frequently pictured separately on the finds from Gura Baciului I (Vlassa 1972, Taf. 15, 2.7, 8; Taf. 16, 1.3, 4). In Donja Branjevina it is less frequently found and it is usually combined with other kinds of decoration (Karmanski 1979, T. XIX, 2). Only in the Proto-Starčevo phase at Gura Baciului does the white point decoration individually create a unique ornament: parallel lines made of points (Vlassa 1972, Taf. 16, 3-4; Lazarovici, Maxim 1995, PC IV, 3) or a succession of parallel points in a complex pattern (Vlassa 1972, Taf. 15, 2, 8). A natural assumption may be that these are local expressions of ornamental decoration, which are probably of the autochthonous origin.

In the Early Neolithic of southeastern Europe, outside the original Proto-Starčevo zone, ‘pointille’ motifs are rare. Dots or points can be only found as constituents of linear ornamental decoration, as in the Anzabegovo-Vršnik Ic phase (Garašanin 1979, 92, T. XIII, 1, 4), or the so-called Anza Ib phase (Gimbutas 1976, Fig. 25, 5), Kovačevo (Demoule, Lichardus-Itten 1994, Fig. 16, 7), and in the Gālābnik group (Pavúk 1993, 241, Abb. 3, 15).

Some of the motifs that are found on the Early Neolithic sites in the southeast of Europe appear as Proto-Starčevo white painted ornaments, especially if they originated from the sites with phases of white painted decoration.

In Donja Branjevina a motif with interrupted and long, wavy or zigzag lines is very frequently found (Fig. 4, 4; Karmanski 1979, T. XXII, 8; XXV, 2, 7). This motif is not rare at Kovačevo I (Demoule, Lichardus-Itten 1994, Fig. 10, 11; Fig. 11, 9). In the early phase of the Veluško-Porodinska group belonging to the Early Neolithic (Veluško-Porodinska I phase), white painting appears with the motif described as the Cyrillic “Z” (з), or the Greek letter epsilon (ε) (Garašanin 1979, 112, T. XV, 1, 2). Although the wavy painted zigzag ornament in white and dark technique appears later as well, its first appearance in white design is dated to the beginning of the Early Neolithic. Its regular appearance in the Early Neolithic, as well as the frequent appearance of its variations in the eastern Albanian Early Neolithic, in Podgora I (Prendi 1990, Fig. 6, 1, 8, 11; Fig. 7), is synchronized with “Anzabegovo-Vršnik I (essentially phase Ic) – Veluška-Porodin I-II – Starčevo IIa – Nea Nikomedeia – Preseslo/début de Seslo – Čardar”, according to the Albanian Neolithic experts (Prendi 1990, 426).

In the Donja Branjevina II phase, a net-like motif, perhaps covering the whole surface, is frequently found (Fig. 4, 3; Karmanski 1979, T. XIX, 1), is sometimes part of a more complex ornamental motif (Fig. 3, 5; Karmanski 1979, T. XIX, 3; T. XXII, 1-5; T. XXV, 5) and is included in the group of ornaments that are often used in the white painted pottery horizons of the Yugoslavian Danube basin and southeast Europe. Our attention is particularly focused on the fact that a similar concept of the quadrangular, rhomboid nets appears at Donja Branjevina II (Fig. 4, 5), Gura Baciului I (Vlassa 1972, Taf. 15, 2.10), Cîrcea (Nica 1976, T. I.6), and Kovačevo I (Demoule, Lichardus-Itten 1994, Fig. 10.4-6, 9-10, 12; Fig. 11.5 etc.).

A pottery fragment decorated with the combination of filled and line-shaded triangles (Fig. 4) that was already mentioned in this text, is a relatively reliable, cultural and synchronist connection to the Early Neolithic of Macedonia, Bulgaria and Greece (Todorova, Vajsov 1993, 100, 9, 10; Demoule, Itten 1994, Fig. 20; Gimnutas 1991, 20, Fig. 2-7). Filled, net-like triangles and other combinations of net-like motifs and parts or imaginatively designed ornaments are frequently found. Examples can be found in Slatina's dwelling horizon IV (Nikolov 1989, Abb. 4), the Karanovo I group (Todorova, Vajsov 1993, 161, Ris. 102, etc.), Gălăbniș I (Lichardus-Itten 1993, 116:c), Gradešnica (Pavúk 1993, 240, 2), etc.

A pottery fragment with combined floral ornament painted in white lines was in a way unexpected (Fig. 3, 1; Karmanski 1989, T. 1, 7). The closest analogy – white motifs painted in the curved lines – can be found at Gura Baciului I, (Vlassa 1972, Taf. 16, 1.5). Since in both cases it is a fragment of a vessel, it is not possible to reconstruct the ornamental decoration as a whole. This is why both ornaments painted in white lines are hard to connect to the already published variations of floral ornamentation on the pottery of the southeastern European Early Neolithic (Garašanin 1979, S 1.9, Ia, 1).

In Donja Branjevina II, a ceramic assemblage with white "diluted" lines on a red slip base (Karmanski 1979, T. XVIII, lab-6ab) was found. In Gura Baciului white diluted lines were perhaps painted on a white base (Vlassa 1972, Taf. 16, 1, 7, 8). Outside the Proto-Starčevo zone we have not found a similar way of decoration. One could assume that the technique of the "diluted white ornament" spontaneously occurred as a result of mistakingly putting the white colour over the slip surface, hence diluting the colour during the slipping or baking. Whichever theory is right, this is an important detail from a technological, aesthetic, cultural and chronological point of view.

So far, not much can be said about the age and duration of the Proto-Starčevo white painted pottery phase (Donja Branjevina II - Gura Baciului I). However, Karmanski dates the Starčevo layer from Donja Branjevina Ia, where some white painted pottery was collected, by means of C-14 analysis of charred bones from a fireplace to 7155 ± 50 (Karmanski 1989, 6, fn. 28). Comparing non-calibrated and calibrated C-14 determinations from Achilleion IIa-IIb (Gimbutas, Winn, Shimabuku 1989, 28-29), we would propose 6100-6000 cal. B.C. as a plausible absolute date for this horizon (Donja Branjevina Ia). If the excavator's assumption is true that the pottery found near the fireplace is most likely derived from the preceding white painted pottery level (Donja Branjevina II), the conclusion may be that Donja Branjevina II is synchronous with Proto-Sesklo, and should be dated approximately 6300-6100 cal. B.C.

Although Karmanski's report should be accepted as a mere hypothesis, it is taken as a starting point for dating the horizons of Proto-Starčevo white-painted pottery (Donja Branjevina II). In this way the framework could be drafted of the middle phase of the Early Neolithic in a wider area of southeastern Pannonia all the way to Transylvania.

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Fig. 1.a. Location of Donja Branjevina in its vicinity in Bačka (Vojvodina).

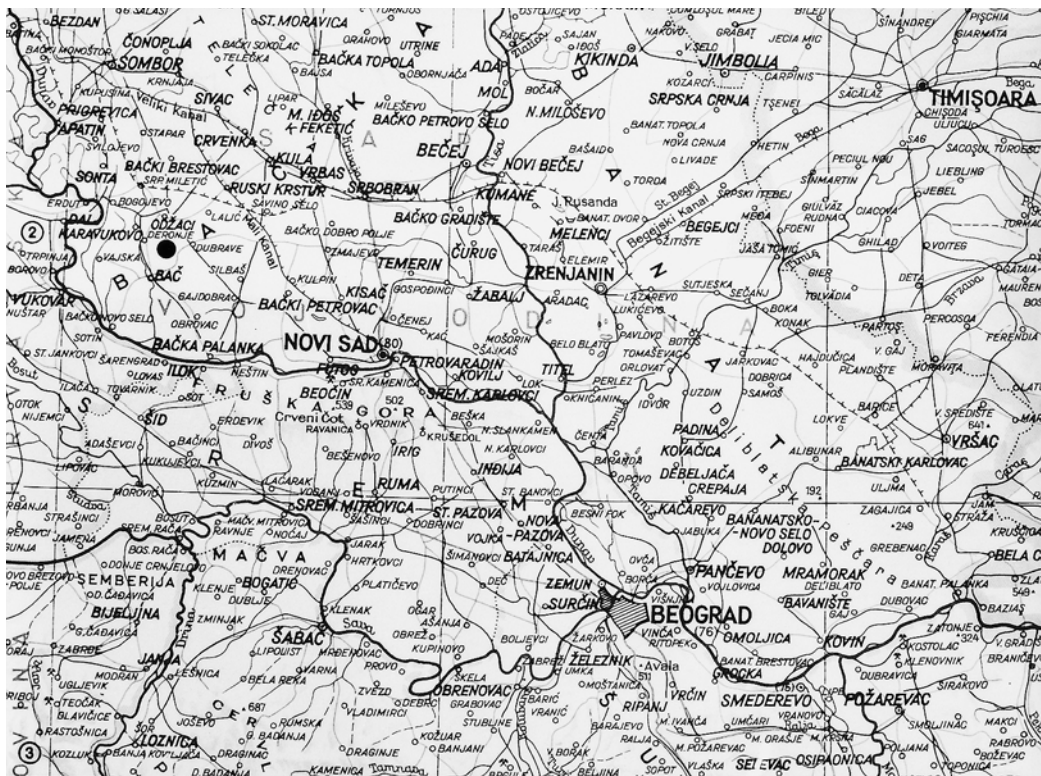


Fig. 1.b. Location of Donja Branjevina in southeastern Pannonia.



Fig. 2. Locations of sites with white painted pottery and synchronous locations in southeastern Europe.

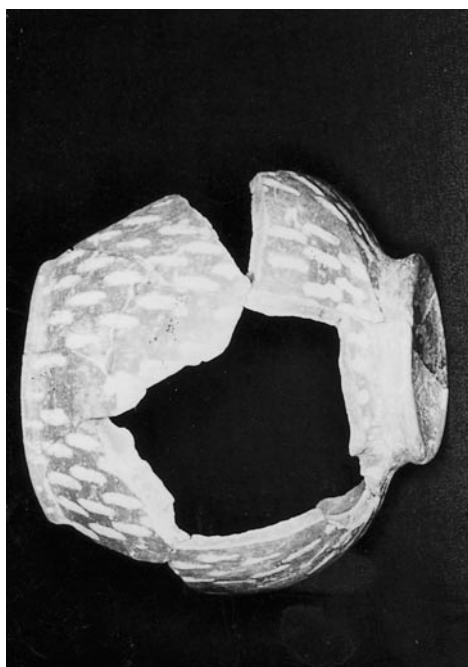


Fig. 3.1



Fig. 3.2



Fig. 3.3



Fig. 3.4

Fig. 3. White painted pottery from Donja Branjevinina II.



Fig. 4.1



Fig. 4.2



Fig. 4.3



Fig. 4.4



Fig. 4.5

Fig. 4. White painted pottery from Donja Branjevina II.



Fig. 5.1



Fig. 5.2

Fig. 5. Grivac IIa (Starčevo IIa).

Milošević 1949 1950	D. Garašanin 1954	Dimitrijević 1969, 1974, 1979	Srejović 1969 1988	Vlassa 1972	Kalmar 1990	Lazarovici 1979	Lazarovici Maxim-Kalmar 1995	Brukner 1996
O V	IV	Starčevo Final Ždralovi	Starčevo III	Gura Baciului IV	B	Starčevo Cris IV	G.B. IV Starčevo IV	A3 Vinča A2
		Spiraloid B						
E C	III	Spiraloid A	Starčevo II	Gura Baciului III	B	Starčevo Cris III	G.B. III Starčevo Cris III	A1 Starčevo Cris III
		Girlandoid						
R A	II	Linear B	Starčevo I Lepenski Vir III Lepenski Vir IIIa (level above dugouts)	Gura Baciului II Gura Baciului I	B	Starčevo Cris II	G.B. II Starčevo Cris II	B Starčevo Cris II
		Linear A						
T S	I	Monochrome B	ProtoStarčevo I Lepenski Vir IIIa (pits and dugouts)		(Gura Baciului Ia	Starčevo Cris I	G.B. I Starčevo Cris I	B Starčevo Cris I
		Monochrome A						

Table 1. Table of synchronous cultures of early and late Neolithic in southeastern Pannonia and Transylvania.